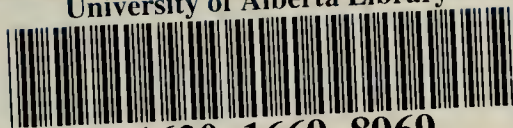


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September, 1973



blue jay

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

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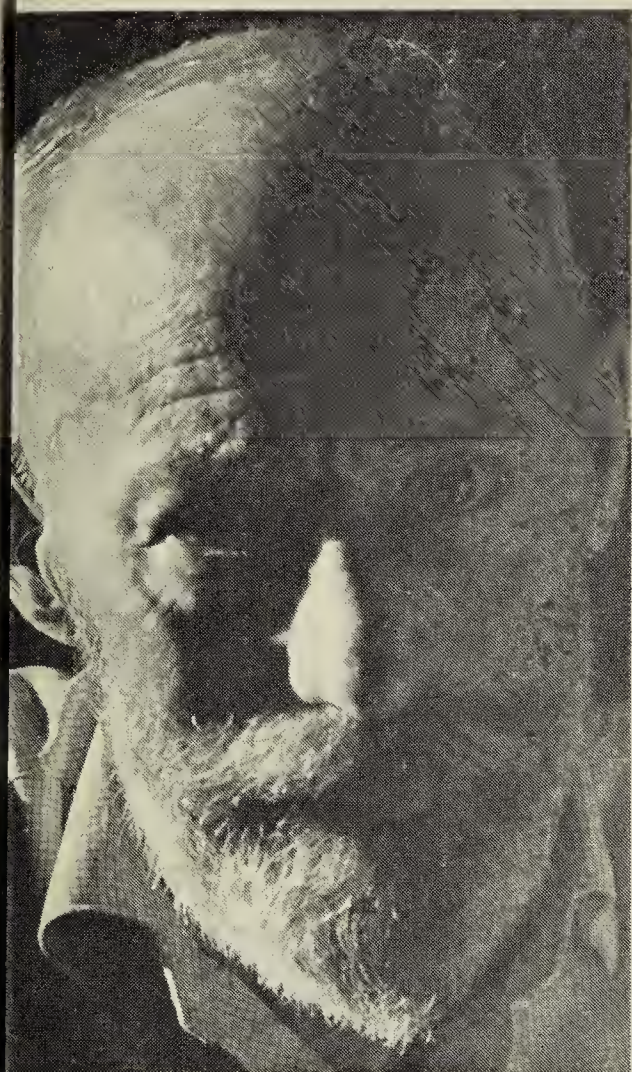
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In Memoriam

ROBERT DAVID SYMONS, 1898 - 1973

by GEORGE F. LEDINGHAM*



A friend and supporter of the Saskatchewan Natural History Society and an ardent defender of all living things, Bob Symons died February 1, 1973. We are sad that his physical suffering, which sometimes during the past 7 years was almost unbearable, is over. We all join in expressing sympathy to his wife, Hope (a stimulating personality in her own right), and to other members of his family. We are sorrowful that we will not be able to meet with him again, to listen to explanations of his philosophy of life and to discuss and debate many topics with him. An excellent story teller with a vivid memory, he was a man who lived a richly varied life, and he is still with us in the memory of his conversation and in his writings and paintings.

I first met Bob Symons when he was painting the background for the antelope case in the Saskatchewan Museum of Natural History. Though this meeting was in 1952 before our present museum building was built or opened (1955), I remember the occasion very well for I had never before met anyone quite like him. That day he was rather artistically and unconventionally dressed and was surrounded by the paints and rags with which he had been working. While he put away his equipment, Bob talked of what he was doing. The scene he was painting with amazing rapidity was the west block of the Cypress Hills looking south to the Bear Paw Mountains. He described each ranch in this huge area, how many square miles it contained and who owned it. It was obvious to me even in that first meeting that Bob knew the country and loved it, and that he understood well the complex relationships of birds, mammals, plants, and ranchers. I had had my first meeting with a man who was not only an excellent artist but who also could make a person see and understand the complexity of the world, and more particularly the complexity of this province in which we live. I met a new friend that day, and in so doing gained respect for the director of the museum who had recognized his ability.

Bob Symons was born in England, son of William Christian Symons, a well-known London Artist. He came to Canada in 1913 at the age of 16 with the resolve to be a cowboy, and ended up in Maple Creek where he waited until a rancher wanting a hand came to town. His books indicate that his memory of this time was vivid. His life in this area was interrupted, however, by the First World War. He joined the Canadian Expeditionary Force in 1915 and served in France with the 217th Battalion. When he returned to Canada, he registered his own brand and started ranching in the Arm River valley. (The coyote case in the museum depicts this area and in-

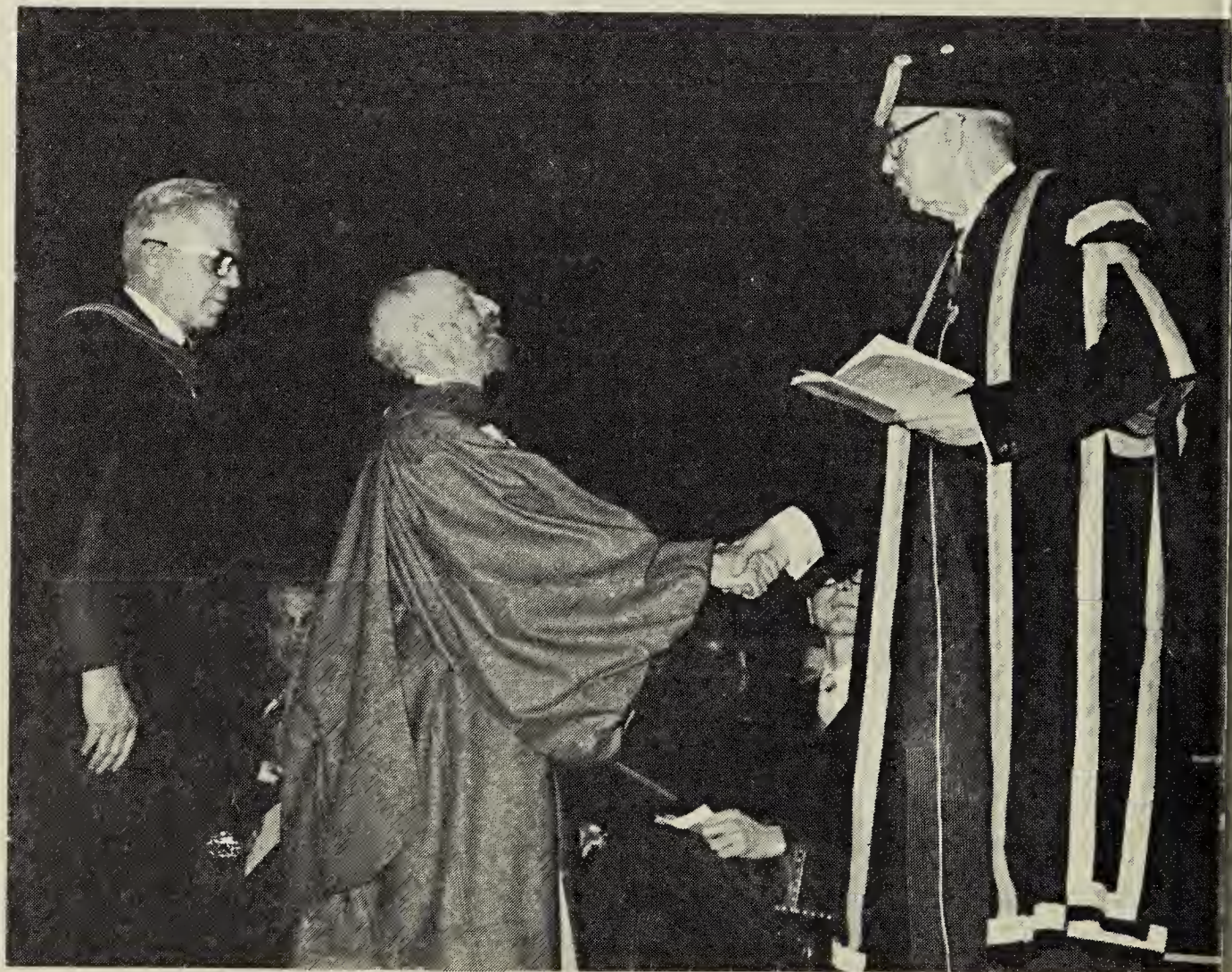
*335 Athol St.,
Regina, Saskatchewan
Received March, 15, 1973.

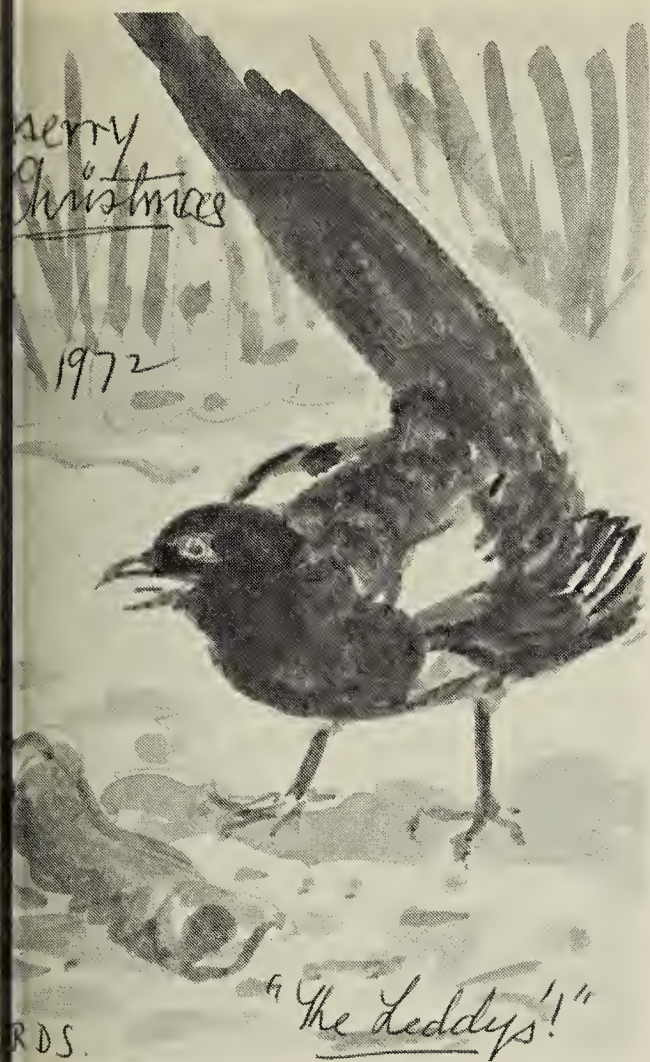
dicates that his eye saw more than cattle.)

In 1927 Bob Symons became a full-time game warden with the Department of Natural Resources, and his knowledge of Saskatchewan at this time greatly expanded for he was stationed in various parts of the province and finally, in 1939, back in his beloved Cypress Hills. He became a game warden in British Columbia in 1942, but in 1945 he settled on a remote ranch in the valley of the Upper Cache Creek, northwest of Fort St. John, British Columbia. It was during this phase of his career that I had first met him painting in the museum during the winter. In the late fifties when Bob saw his way of life threatened by increasing industrial interests and realized that his health would not allow him to stay on the ranch for long, he sold his land and returned to Saskatchewan. After a winter in the south, spent mostly in Mexico, he opened a studio at Pelican Point near Sifton, but a more serious illness which nearly ended his life early in 1966 forced him to leave the lake and settle in

the village of Sifton. Here, except many periods in hospital, he lived, wrote and visited until a few days before his death.

Following my first meeting with him in 1952, I had many visits with him. After that first meeting I had mentioned that I had located him in the Cypress Hills, one particular later visit proved to be that he had an incredibly good understanding of all southern Saskatchewan. On this occasion a few of us met to visit with Bob before he left Regina to welcome spring on his ranch in British Columbia. In the course of the evening both Fred Robinson and I projected a few kodachrome transparencies. From the beginning, because of chance remarks on the first picture, the activity became a recognition contest. I was amazed at Bob's ability to locate each picture and describe other details of the area outside the limits of the photograph. For example, I had taken a picture from a hill north of Jack Lake not far from where we held our summer meeting last year. The picture did not include any water and I did





nk there was anything especially
 instinctive in it, but I did not need to
 identify it; Bob located the exact spot.
 In this connection you may remember
 Bob's article "A typical nesting of
 Bonaparte's Gull in Saskatchewan" in
 the June, 1968, *Blue Jay* which was
 written because birders in Toronto, who
 claimed that the birds nested only in
 reeds, would not accept Bob's 1932
 discovery of Bonaparte's Gulls' nesting
 reeds in Lamotte's Swamp.)

After his retirement from ranching,
 Bob contributed frequently to the *Blue
 Jay*. Two of the *Blue Jay* cover
 illustrations are sketches by R. D.
 Symons: the September 1962 issue
 shows the coyote in dry southwestern
 North America, and the December 1970
 issue features two wolves feeding at a
 carcass. The article written by Bob
 Symons which I refer to most often is in
 the March 1966 issue. It is entitled
 "Personal recollections of some early
 Saskatchewan Naturalists." One person
 mentioned in that article was Rex
 Holmes, who had taken mounted
 specimens of Saskatchewan birds back
 to England. As a lad of 12 - 16 Bob
 Symons saw, loved, and began painting

these specimens (Gray Jay, Great Horned Owl, Marbled Godwit, Pileated Woodpecker, and Yellow-headed Blackbird). It may even have been this youthful experience which brought him to Saskatchewan in the first place and which inspired what became a life-long concern for conservation. For several years Bob Symons was chairman of the Saskatchewan Natural History Society conservation committee, and the society recognized his contributions in the field of natural history by making him the recipient of its 1965 Conservation Award and by appointing him Honorary President in 1970.

Bob Symons was also a successful writer. His numerous articles in the *Blue Jay*; in daily, weekly and monthly newspapers; and in farm and ranch journals cannot be listed here, but have influenced the opinions of people in western Canada. He created in many individuals a greater respect for all life and a better understanding of the fact that man lives in a complex, interdependent natural world. Bob Symons' first book was *Many Trails*, published in 1963. The second, *Hours and the Birds*, was published in 1967, but, in-



terestingly enough, an earlier draft of this book had actually been written and accepted for publication in England before 1939. Because of a variety of circumstances the contract was finally broken and all the material returned. The SNHS decided to sponsor the publication by giving editorial assistance to Miss F. Halpenny of the University of Toronto Press and by making (jointly with the Saskatchewan Jubilee Corporation) a grant of money to help with the cost of printing the colour plates. *Hours and the Birds* represents 50 years of bird-watching in Saskatchewan. After 1967 Bob Symons wrote three books: *The Broken Snare* (1970); *Still the Wind Blows* (1971); and *Where the Wagon Led* (1973). Two of these, the first and last, are publisher's book of the month selections, a recognition which speaks for itself.

Bob Symons was also an artist of great talent. The "inward eye" that Wordsworth talks about enabled him to reproduce on canvas many scenes which belonged to his early experience. Many of his paintings are in private collections, while his murals and dioramic backgrounds may be seen in four of Saskatchewan's Provincial campgrounds at Maple Creek, Cypress Hills, Moosomin, and Lac la Ronge; and in the Natural History Museum in Regina. Bob used his talent generously and his friends frequently received hand-painted greetings at Christmas-time. I especially prize a picture of a magpie received this last holiday season because at that time Bob was almost completely confined to bed. His pictures show expert knowledge and understanding of his subject and a true sense of composition. One of my favorites is the jacket illustration for *The Broken Snare* (see review of this book, *Blue Jay* pp. 93 - 96, June 1970); another is the painting of the marsh wrens reproduced in colour in *Hours and the Birds*.

Bob Symons received many awards during his lifetime, but I should like to mention one which I know he especially cherished. In October, 1970, the University of Saskatchewan, Regina, conferred on him an honorary doctor of laws degree for his contribution to the

people of Saskatchewan and to the (*Blue Jay*, December, 1970). In her dress presenting Bob Symons for honorary degree, Margaret Belcher phasized this point to the assembly body.

Many people of varying beliefs visited Bob during the last 10 years of his life. His own religion showed in his love of all living things, a love which compelled him to speak against polluters, modern technologists and those who refused to accept the ideal of law. He had no close association with any particular religious faith but he could talk to adherents, and appreciate the good points, of all faiths. (The fact that his funeral and memorial services were conducted by ministers of the various denominations substantiates this point.)

Robert David Symons will be remembered, then, in many different ways. He was a cattleman who understood the wolf; he was a cowboy who could stop for a smoke and take time to listen to and sketch a meadowlark. He was a man who abhorred technologically produced luxuries because these in his view contributed little or nothing to the spiritual nourishment of man.

I can think of no more appropriate way to conclude this brief tribute than by quoting Bob Symons himself. Towards the end of *Many Trails* he says: "In the race for money to buy happiness, time . . . robs us not only of our youth, our days, our years, but robs us also of the opportunities to attain the greater happiness we cannot buy — a contented mind in tune with nature". And again, "the message of the silent places is the key to a proper understanding of all the others."

At length the summer's eternity
is ushered in by the cackle
of the flicker among the oaks
on the hill-side, and a new
dynasty begins with calm security.

— Henry David Thoreau

DEPARTMENTS OF ENVIRONMENT

Part I

by J. STANLEY ROWE*

In the last few years, rather suddenly, the word "Environment" has become prominent in government organization across Canada, a response to public uneasiness about deteriorating water, air and landscapes. This was to be an article comparing the environmental agencies of the federal government and the three prairie provinces, but Manitoba failed to respond.** Unlike the rest, that province does not have a Department of Environment but rather a Department of Mines, Resources and Environmental Management. Let us then omit the Manitoba hybrid and look at the three that boldly take environment as their sole concern.

Since "environment" is by definition that surrounds us, it includes directly and indirectly practically everything with which governments deal. If Departments of Environment were to assume full responsibility for all environmental matters, they would have to absorb agriculture, Mineral Resources, Forestry, Public Health, etc. Obviously this is not feasible, so the environmental departments have set the more reasonable goal of coordinating and providing leadership for environmentally-related policies, programs, services and administrative procedures in their sister departments. However, each does maintain certain specific jurisdictions, especially over water. For example, the Alberta Department has its Water Resources Management Division, the Saskatchewan Department has its Water Management Service, and the Federal Department its Fisheries and Marine Services. There may be some hidden wisdom here, for water is more than a resource; it is a vital part of environment.

How does each of the three departments ride herd on other governmental agencies? At the federal level, it is not at all clear that interdepartmental coordination is being achieved. When the Doré Lake pulp mill was being mooted, Jack Davis, the Minister of the Environment, apparently heard about it by reading the newspapers rather than through the then Minister of the Department of Regional and Economic Expansion. The current goings-on in northern Canada concerning pipelines and hydroelectric developments also suggest that Environment Canada is only reluctantly and at late stages taken into the confidence of the Department of Indian Affairs and Northern Development. Things may be a little better in the provinces where at least formal means have been provided to facilitate environmental coordination. In Alberta there is a Natural Resources Coordinating Council, comprising deputy ministers of environment-related departments (Agriculture, Municipal Affairs, Industry and Tourism, etc.), that oversees all government policies and programs, and that reports to the Minister of Environment. In Saskatchewan, a similar "Interagency Coordinating Committee" fulfills the same function under the chairmanship of the Deputy Minister. How effective these devices are remains to be seen.

All departments look to the public for environmental advice, either directly or through appointed bodies. Both Canada and Saskatchewan have set up Environmental Advisory Councils whose members (15 and 12, respectively) represent a cross-section of groups interested in environmental protection and conservation. In each case the Council reports to its Minister, advising on the state of the environment, on priorities for government action, the effectiveness of government programs, and other matters suggested by the Minister. These Councils are too young to be evaluated yet,

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**Manitoba responded too late for inclusion in this first article.

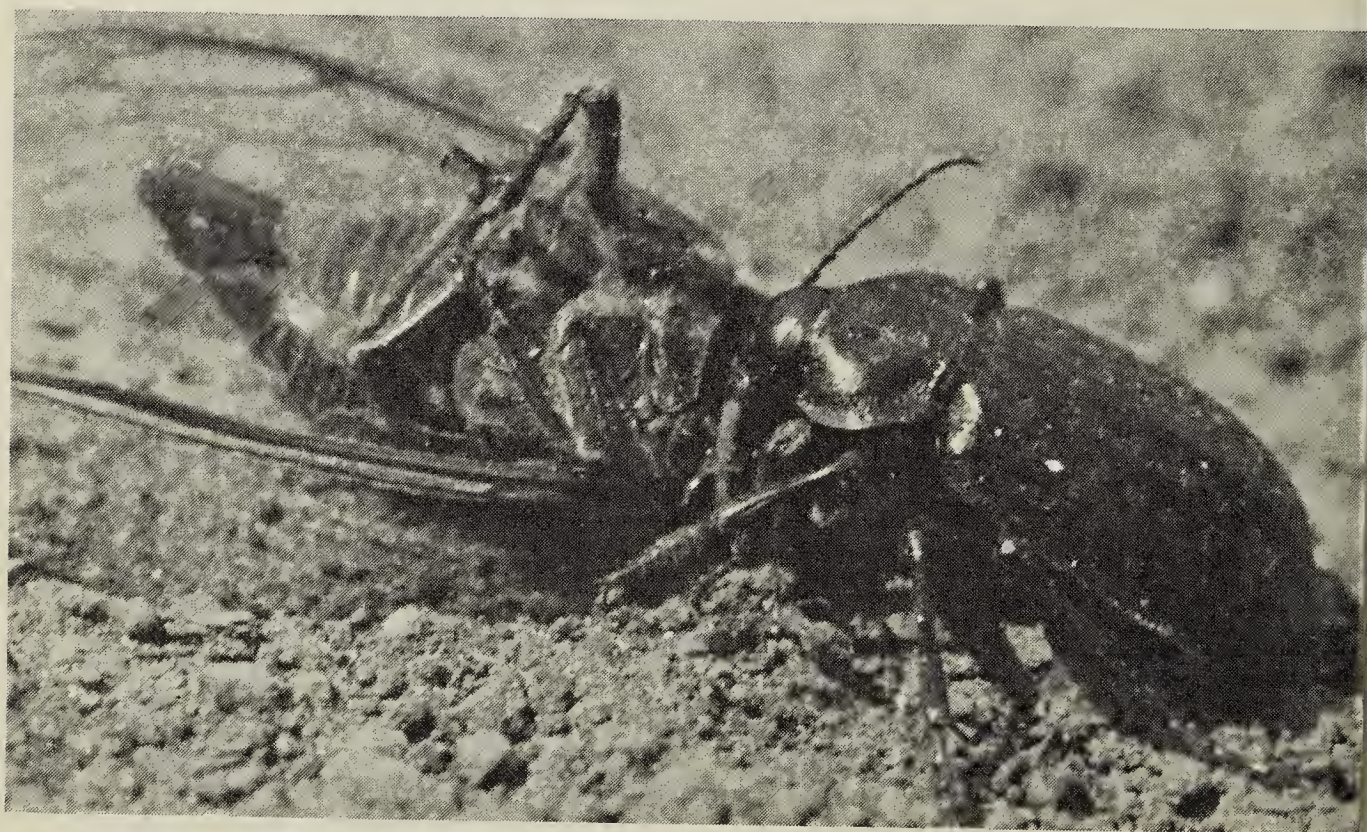
but their worthiness or lack of it ought to emerge in about a year's time when they begin to produce reports. The Councils invite public input, and in Saskatchewan any person or group with an environmental concern is asked to contact the Provincial Environmental Advisory Council, Box 1906, Saskatoon.

Alberta has taken a somewhat different tack, setting up a near autonomous Environment Conservation Authority. A three-man board that became a crown corporation in 1971, it is staffed by salaried professionals with a budget ample to hire consultants, hold public hearings, and more or less independently review policies and programs concerned with conservation, resource development and pollution. The Authority has its own Advisory Committees, one of which in 1972 petitioned the Minister to rescind a recent amendment to the Environment Conservation Act that curtails the Authority's "freedom of action in generating public discussion of environmental problems". Whereas the Authority used to report directly to the Lieutenant-Governor-in-Council, now it must report to the Minister. In this there is the suggestion that the Authority may be causing the government some

concern. Mr. Yurko, the Alberta Minister, is probably looking enviously at the easier arrangement in Saskatchewan and at Ottawa.

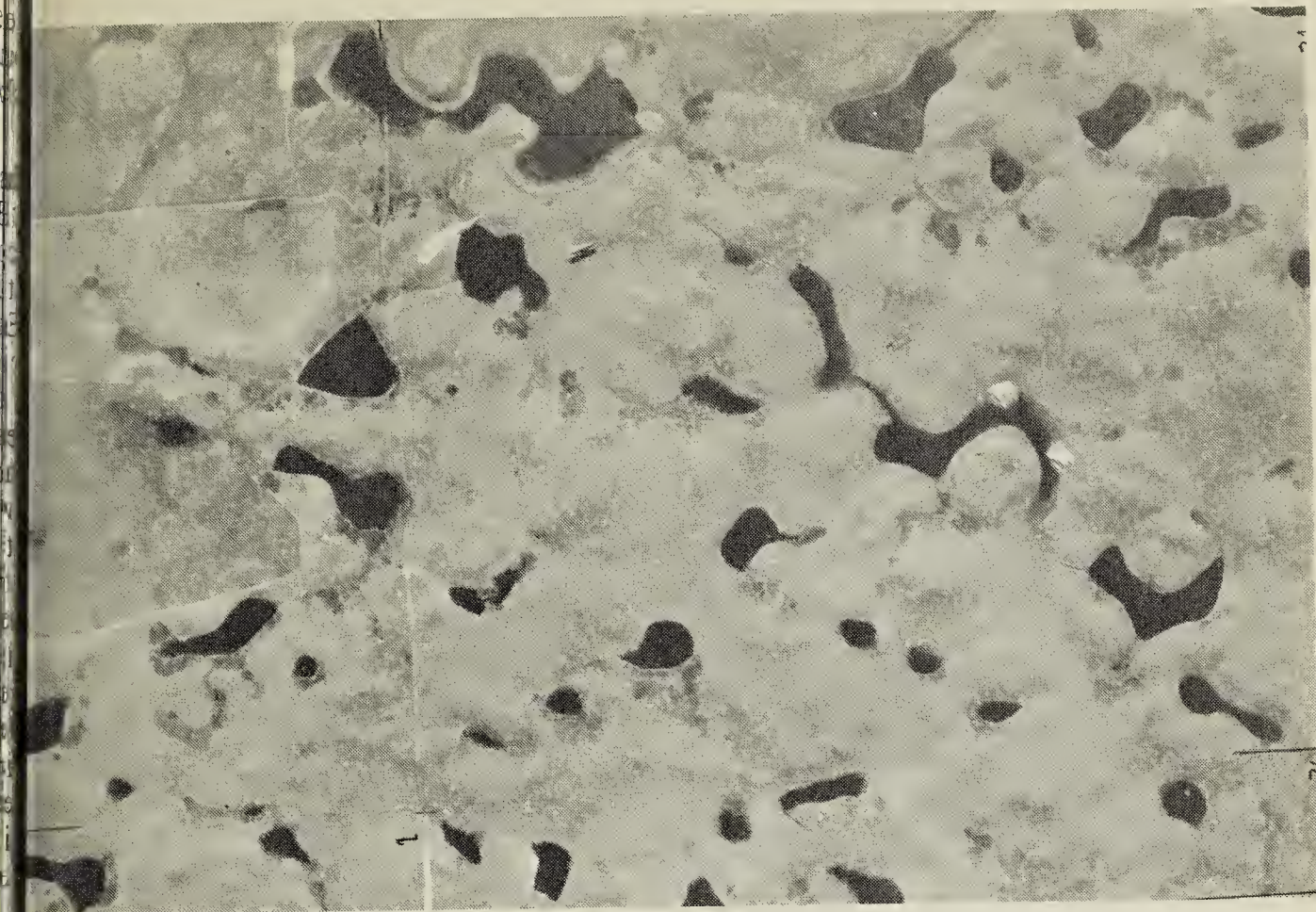
Internally, the three departments have many similarities. Each has its "Environmental Protection" service, concerned with such subjects as pollution control in air, water and on land. Each recognizes the importance of public information and education by an appropriate service or division, and each has a policy, planning and research branch. The need for the latter is well expressed in the following quotation from "Environment News", a monthly publication by Alberta Environment: "In essence, the role of government is to emphasize prevention rather than treatment on the basis that this principle is logical, practical and more economical. With environmental matters, this means that the government needs coordinated comprehensive input and long-term planning."

Long-term planning is certainly a key to a healthy environment, and it is to be hoped that the Departments will be lavish in providing the money, brains and time for this essential activity. In the subsequent article, the Acts under which the three environmental departments operate will be reviewed and compared.



Carabid beetle feeding on a Cicada.

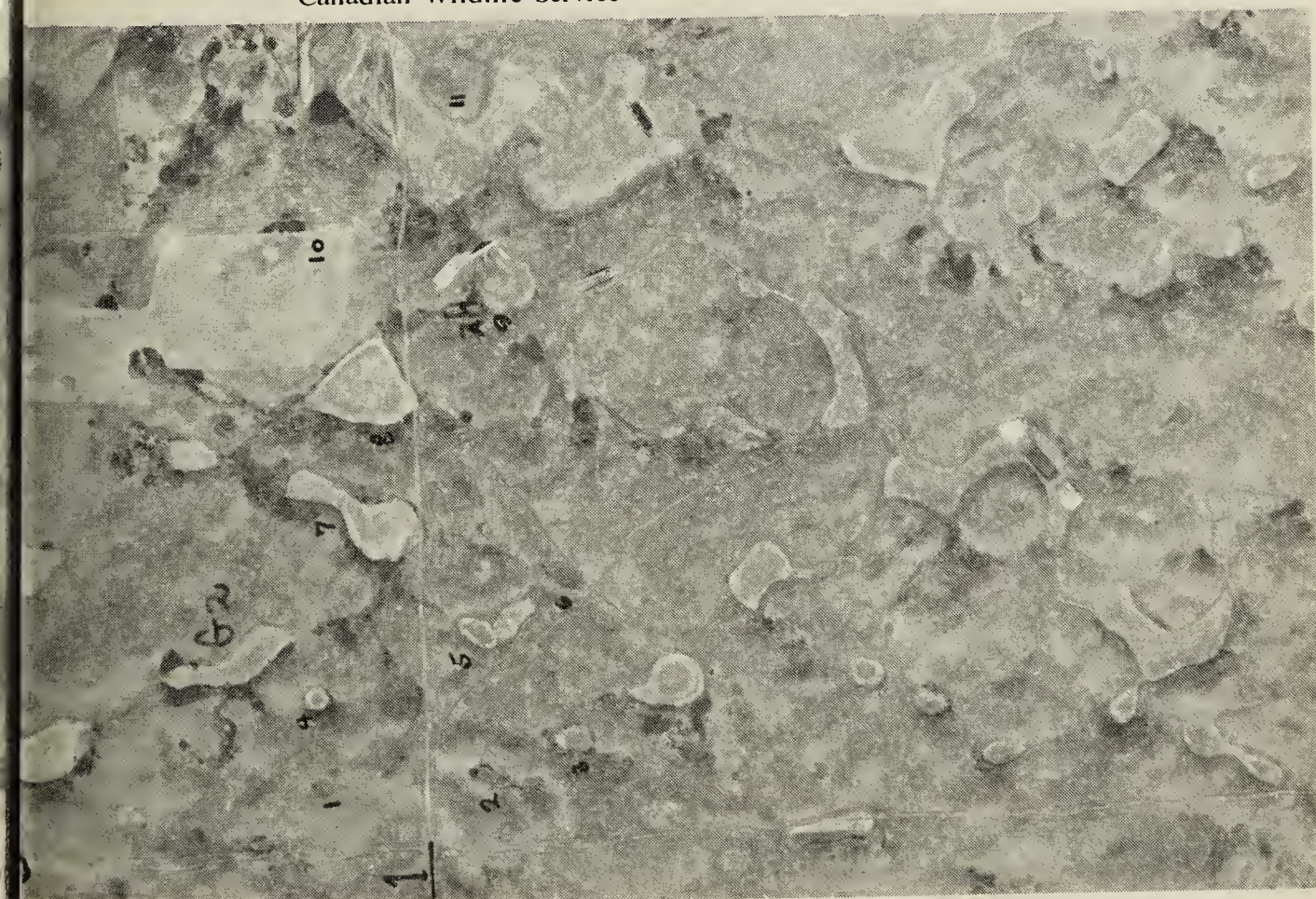
J. D. Shorthorn



oughs full. Swift Current, May, 1965

WET YEARS — DRY YEARS

oughs dry. Same area, May, 1964
Canadian Wildlife Service



"... a wharf had been built on Long Lake at the end of the completed portion of the railway.

But by the time the wharf was built a period of dry seasons had commenced, and the shore of the lake kept receding until the wharf was entirely on dry land.

That the drying up of the lake was not an extraordinary occurrence was shown by the fact that at the site of the wharf and well past the end of it, there were old buffalo trails and well worn Indian travois ruts plainly to be seen. This was good evidence that part of the lake had been dry in the past long before the wharf was built."²

Thus did P. Turner Bone, the civil engineer who located the railway from Craven to Saskatoon in 1889 explain the failure of the navigation aspect of the Qu'Appelle, Last Mountain and Saskatchewan Railway and Navigation Co.² The wharf at Craven had been unused from the date of its construction in 1883.

It is appropriate to consider the failure of attempts at steamship navigation on the Saskatchewan River during the period 1874 to 1889. Bruce Peel has documented the events in his book *Steamboats on the Saskatchewan*.⁸ There were perhaps 3 years in this interval when navigation enjoyed some measure of success but the progressive effect of drought left some 50 miles of riverbed dry around the southwest side of Cumberland Lake by 1889.

An abortive attempt at hydroelectric power development at La Colle Falls by the City of Prince Albert owed its demise to an inadequate knowledge of rainfall and streamflow variation.¹

The drought of the 1930's in Saskatchewan was disastrous for agriculture and business. It has been the writer's contention that similar disasters are

likely to occur again and that present water and land-use practices are more likely to aggravate than alleviate the possible consequences.

Recent Annual Reports of the Saskatchewan Department of Agriculture reveal an interesting departure from the original conception of the function of the Conservation and Development Branch. The 1970 report enumerates projects which may be promoted:

- "1. Erosion control projects.
2. Water Stabilization and Development projects for
 - (a) Irrigation
 - (b) Drainage
 - (c) Domestic purposes and Industrial uses
 - (d) Watershed protection.
3. Pasture Land Reclamation.
4. Maintaining, designing and planting shelter belts, woodlots and tree growth for protection of land and drainage basins.
5. For the eradication of insect and weed infestations.
6. For the development of underutilized areas.
7. For the reclamation of misused lands for whatever purposes they may be best suited."¹⁰

A study of the Annual Reports for the following 20 years shows how far the C & D Branch deviated from the commendable objectives. Drainage received major attention during the three wet seasons of 1953-1955, and again during the late 1960's when federal government (A.R.D.A.) grants became available for C & D Branch administration.

Latest available statistics (1971-72) on accumulative spending by the C & D Branch show a total of 11.5 million dollars under the heading "Flood Control" (a euphemism for "drainage to qualify for A.R.D.A. assistance). Irrigation received less than one-half

* 1813 Wiggins Ave.,
Saskatoon, Saskatchewan.

this amount. When the Community Sture programme came under C & D jurisdiction, clear-cutting of wooded b-marginal lands (with extreme fencing costs due to stones) accounted for large part of the 12 million dollars spent. It seems timely for an appraisal of the consequences of two decades of overemphasis on large scale drainage, involving several million dollars of public monies, while erosion control, shelter belts and wood lots receive scant attention.

Concern for inadequate water conservation and spring flooding due to shortsighted activity of the Conservation and Development Branch was outlined by the writer at the first Wetland's Project Advisory Committee hearing in Melfort in April, 1972. Mr. J. A. Wedgwood expressed the same concerns in the *Blue Jay* of December, 1972.¹² Widespread flooding along the Carrot River a few days after the Melfort hearing may have emphasized the hypocrisy of the term "Flood Control". It is a common occurrence for rapid snowmelt to be followed by weeks or months of low precipitation as shown in the Carrot River Basin last year.

At this time (April, 1973) a year later, farmers are worried about dried up wells and dugouts. Dugouts are usually filled by snowmelt and otherwise take exceptional rainfall to refill. Groundwater levels decline and recover more slowly. Large road ditches and drainage schemes interfere with groundwater recharge. Groundwater has the greater potential for stabilizing rural water supplies and deserves more careful management.

Currently there is strong government pressure on farmers to increase livestock production. This diversification seems to be as dependent as navigation and hydro-electric power on a reliable daily source of water. Dryland grain farmers are capable of withstanding weeks or months of drought more successfully than the livestock producer who may find it necessary to market his animals prematurely when feed or water supplies are not sufficient.

There is great variability in our precipitation from year to year and seasonally. Compilers of data are inclined to average this information without further interpretation. Yearly averaging is only slightly improved when standard deviations or coefficients of variation are quoted. The simple bar chart has much to recommend it as a visual portrayal of monthly precipitation. Crop yields vary in relation to previous autumn rainfall as well as growing conditions.³ Farmers have learned to employ summerfallowing as a means of insuring an adequate soil moisture level for crop production. Although there is new evidence that this may be poor practise from the point of view of soil management,⁹ the concensus is that additional soil-stored moisture increases yields. Optimum rainfall amounts for wheat are 18 inches, for coarse grains 16 inches, rapeseed 25 inches.⁶ For forage production the optimum moisture requirement is likely to be close to 25 inches. Yearly precipitation, including snowfall, is usually much less than these amounts.

It is not commonly realized that yearly precipitation for Estevan exceeds that for Melfort or Prince Albert; nor that snowmelt losses are greater in the northern agricultural areas. Snowfall at Melfort is equated at 4.7 inches, rainfall at 11.37 inches; at Prince Albert 4.0 inches equivalent snowfall and 10.83 inches rainfall; while Estevan reports 4.4 inches equivalent snowfall and 11.96 inches rainfall. In view of such data it is difficult to find justification for government sponsored drainage in areas like the Carrot River Basin. Drainage schemes in the "Land of Rape and Honey" seem destined to reduce available water to two-thirds that required for wheat and to less than half the optimum for rapeseed.

Snowfall accumulates unevenly due to drifting; this fact should be exploited to allow runoff to be utilized for groundwater recharge. A good deal of soils and groundwater research has been done in Saskatchewan, but government employees and farmers show little interest in it. Dugouts are sub-



Steamer Qu'Appelle docked at View Haven, Last Mountain Lake, Saskatchewan.
July 4, 1909.

Archives of Saskatchewan

sidized; however, wells are primarily the farmer's responsibility. Groundwater is better protected from contamination and evaporation and in many areas there is potential capacity sufficient to meet several successive years of drought. Surface water, however, must be admitted to the soil to maintain underground reservoirs.

Climate is said to be a combination of factors including precipitation, evapo-transpiration and temperature. Plants suffer heat-stress just as do animals and humans. The benefits of significant areas of trees can be seen by the rapeseed grower and the cattleman. Evapo-transpiration from native willows surrounding potholes may be the best possible way of dewatering these catch basins. These bluffs provide shade for cattle and local air conditioning for periods of excessive temperature. Evapo-transpiration is an overlooked factor in dry hot periods. Soils specialists, however, recognize it in the "Soil Moisture Efficiency Index".⁷

After drainage the soils in potholes usually differ in texture from the

surrounding fields so that production is only marginally increased. Assessors who are trained in soil capabilities usually recognize this by leaving sloughs at a nominal evaluation of \$1.00 to \$3.00 per acre. Some farmers admit this fact, but justify drainage mainly on the economics of field patterns during operations.⁵ (They overlook the inconvenience of ditches).

An examination of drainage costs revealed in Saskatchewan Department of Agriculture Annual Reports, commonly shows estimates are exceeded by up to 50%. The C & D Branch refers to a \$136.00-per-acre cost as a justifiable basis for drainage.⁴ They give no detailed evidence to support this figure nor for their contention that subsequent increased land assessments pay for the reclaimed acreage. The sort of economic logic was displayed at the Wetlands hearings in Melfort. Farmers promoting drainage should have been required to submit their field assessment sheets and Wheat Board Permit books in evidence. Instead they seem to have influenced the Committee by questionable data on farming costs and alleged duck damage.

petition of drought conditions such as experienced in the 1930's or 1883-1898 periods will show wastage of snowmelt to have been folly.

Precipitation data for Melfort (1910-1971) shows 35 of these years with less than 16 inches and only 27 years above this amount. Using 16 inches as a dividing point for Prince Albert (1885-1949), there were 36 years below and 27 years above. One might advance the argument that the odds favor dry years 4 to 3.

In conclusion, the farmer and conservationist must recognize their common problem is the intelligent storage of water for survival during the inevitable and unpredictable dry years.

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CHAKRAVARTI, A. K. 1969. *The climate of Saskatchewan*. In *Atlas of Saskatchewan*. University of Saskatchewan, Saskatoon, Sask.

⁴COGHLAN, D. O. 1972. *Plans and proposals Goosehunting Creek Flood Control Project: Menzies Section*. Wetlands Project & Advisory Committee. Regina, Sask.

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LOOKING AT SASKATCHEWAN'S FUTURE

The Saskatoon Environmental Society is arranging a meeting of people from all over the province interested in sketching out possible futures for Saskatchewan, determining the environmental, social and economic implications of these alternative futures, and beginning to plan strategies and activities which will help to bring about the sorts of environmental, social and economic futures they desire.

The meeting will be held at Camp Rayner, Lake Diefenbaker, on November 3 and 4, 1973. Persons interested in attending should contact T. H. J. Gilmour, 1614 Ruth Street East, Saskatoon S7J 0L8.

Breeding Behaviour of the

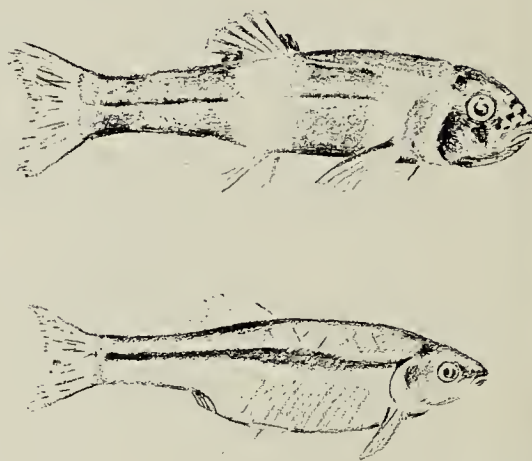
FATHEAD MINNOW

by VICKY McMILLAN*

The fathead minnow (*Pimephales promelas* Rafinesque), a member of the Cyprinidae or Minnow Family, is common in southern Saskatchewan. Important as a bait and forage fish, it has been introduced into much of North America and presently occurs throughout southern Canada, the entire United States and northern Mexico. Fatheads have been of considerable value in studying aquatic pollution and evaluating the biological effects of material from the moon. Surprisingly, however, they have been little studied for their own sake.

For two years (spring, 1970-72) I analyzed the breeding behaviour of the fathead minnow, under the supervision of Dr. R. J. F. Smith, for a M.Sc. degree from the University of Saskatchewan. Observations were conducted in laboratory aquaria, in an artificial pond, and at Blackstrap Lake, Saskatchewan, where fatheads occurred in great numbers. This research elucidated many fascinating habits of the species — habits easily seen by anyone with a little patience and curiosity. This article is intended as an introduction to the fathead minnow for residents of the Prairie Provinces and, hopefully, as a stimulus for additional observations of the fish.

The fathead minnow is a robust, dusky bronze fish reaching a maximum total length of 90-100 mm (3-1/2 — 4 inches). During the breeding season, males differ from females in four major respects. First, true to their name, they have large heads — looking much like “goldfish with heavy black socks pulled over their heads,” as biologist R. B. Miller once described them (Fig. 1). Males also have three



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Fig. 1. Male (top) and female fathead minnows in breeding condition. Note the black head, tubercles, dorsal pad and banding of the male; and the paler colouration, smaller head and distended condition of the ripe female.

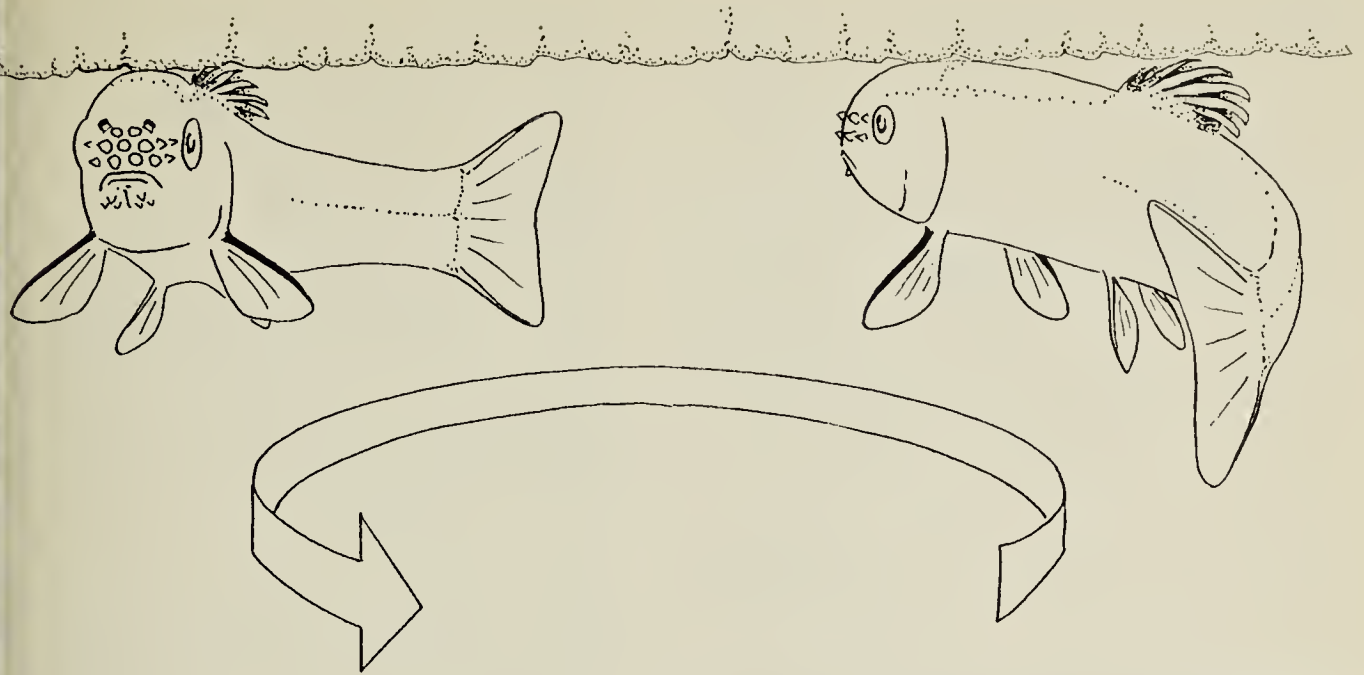
horizontal rows of tubercles on the snouts, plus tubercles on the pectoral fins and frequently on the chin (Fig. 2 and cover). The tubercles are seasonal growths of the epidermis and appear as horny, conical projections. In various patterns they occur in other species of minnows, and much interest has been aroused concerning their behavioural roles.



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Fig. 2. Upper surface of right pectoral fin of a preserved breeding male fathead minnow. Tubercles, used in spawning behaviour, can be seen along four of the anterior rays.

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Fig. 3. Circling. Moving in a circular path, a breeding male brushes his dorsal pad across the underside of his territorial object.

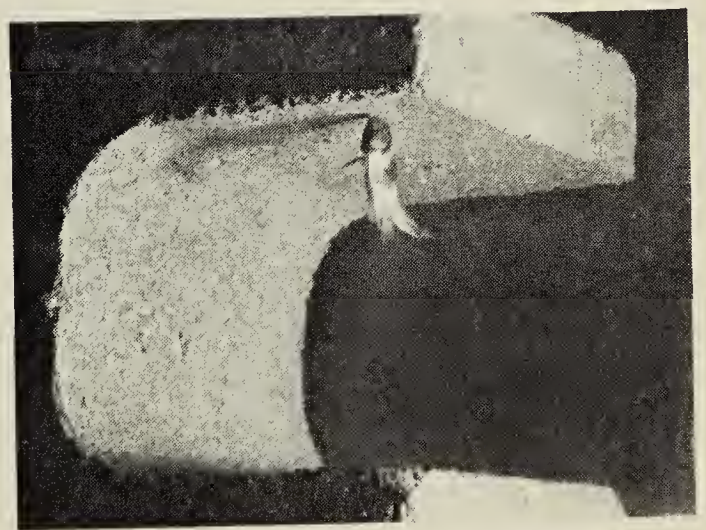
Thirdly, breeding males may be marked with alternating light and dark vertical stripes. This banding — which may appear and disappear in seconds — is most notable in situations involving aggression or sexual activity. Under good field conditions, the contrasting pattern of breeding males makes them easily distinguishable from females.

Finally, males possess a striking "dorsal pad" — a soft, thick, gray cushion extending from the back of the head to the dorsal fin. The pad is present only during the spawning season and seems to play a major role in reproduction.

At Blackstrap Lake in 1970 and 1971, fathead minnows began breeding by early June and continued at least until early August. Peak breeding occurred from early June to early July. With the onset of reproductive activity, males move into shallow water and choose individual territories beneath floating or submerged objects. These "territorial objects" may be almost anything opaque — from lily pads and old tires to rocks and pieces of wood. At Blackstrap Lake, many males defended territories in cavities beneath stones along the rocky shores near the causeway. In aquaria, an ideal territorial object — from the observer's point of view — is an 8-inch concrete block shaped like the letter

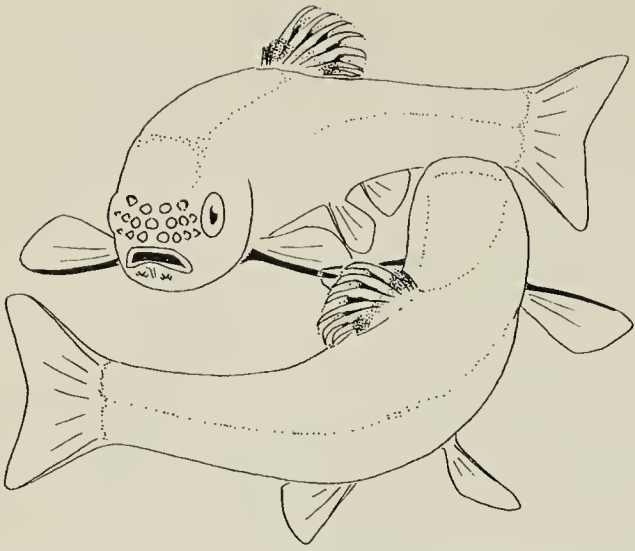
C. The male occupies the cavity of the block (the "inside" of the C), and his actions can be easily observed.

Fathead minnows show such remarkable tenacity in maintaining their territories that they can be easily caught by hand. After selecting a territorial object, a male stays in its immediate vicinity, spending most of his time within several inches of the object's undersurface — where eggs will eventually be deposited in his care. Often a male moves in a circular path below his object, brushing his dorsal pad across its undersurface (Fig. 3). This circling helps to clean the object of algae and other debris and may perform other functions, such



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Fig. 4. Nibbling by a strongly banded male defending the cavity of a C-shaped concrete block.



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Fig. 5. Carouseling (circling head-to-tail).

as signaling ownership of the object, attracting mates, and initiating subsequent phases of male reproductive behaviour.

Territory owners also exhibit "nibbling" behaviour, assuming a vertical posture and contacting their object's undersurface with their snout and lips (Fig. 4). Like circling, nibbling may clean the territorial object and advertise the male's presence. During both actions the male's body may be strongly striped.

The appearance of vertical banding also accompanies the expression of intense aggression, as when two males contest a territory. Such fights involve a number of behaviour patterns that, in similar forms, occur in other fish species as well. The two males may

charge, chase and bite each other. They may carousel, circling head-to-tail as each tries to contact the other (Fig. 5). They may engage in snout-butting contests, using their rows of pointed tubercles (Fig. 6). Or, one fish may tailbeat, undulating the posterior part of its body so that a current of water is directed towards the opponent (Fig. 7). Tailbeating seems to serve an intimidating function, operating through the lateral-line sensory system of the threatened fish.

In aquaria, males may fight vigorously for as long as 30 minutes. Fish will also butt air stones, snail water beetles (*Dytiscus marginalis*), similarly sized fish of other species, and the extended fingers of observers when these intrude into their territories. D. Isaac, who studied fatheads in a Minnesota lake, reports that males carried leeches away from their territories, and that one male vigorously battled with a painted turtle.

In most natural situations, however, aggression by territory owners is prompt but brief, favoring threats over prolonged contact with the intruder. This is highly advantageous to the species, since disputes can then be settled quickly and with a minimum of physical harm, if any. In fact, even in aquaria, where there is no escape from an aggressor, disputes are resolved without serious damage to either fish. And in fathead minnows, as in other

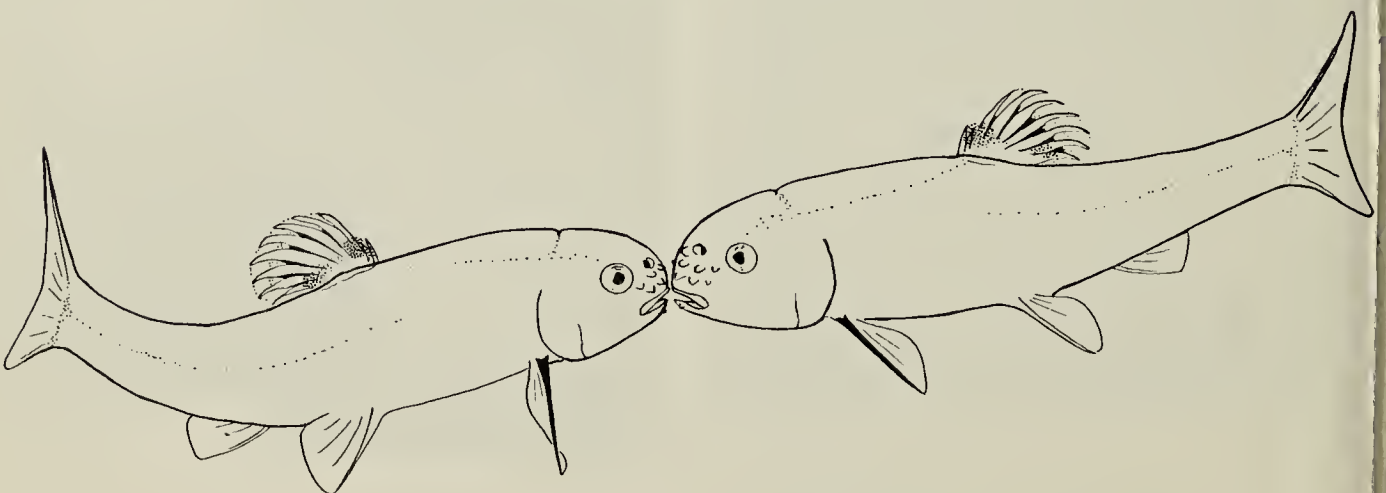
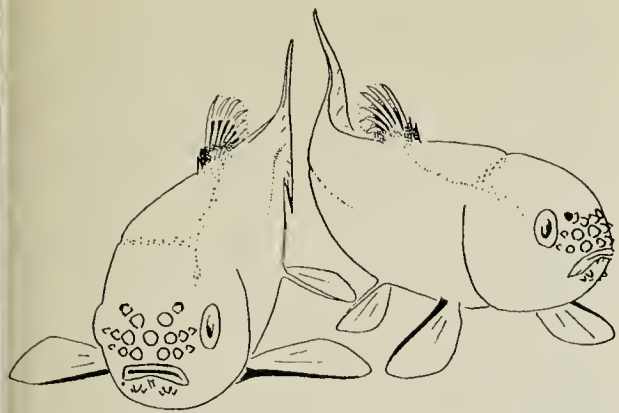


Fig 6. Mutual snout-butting.

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Fig. 7. Tailbeating. The aggressor, at right, undulates his body, directing a current of water towards the other fish.

territorial animals, the original owner generally "wins" each argument over his domain.

An interesting aspect of territorial fatheads is their strong aggression towards females as well as males. Females, even ripe ones seeking to spawn, are repeatedly butted and chased, although they display little territorialism or aggression themselves. In some animals, aggressive acts in certain contexts have been classified as essentially sexual in function, since they incite one or both partners to mate. However, in the case of the fathead, more data are needed before we can definitely say that male butting stimulates the female to spawn. For the present, it appears that the male simply responds to the female as an intruder in his territory; and his aggression is intensified by her frequent approaches to the underside of the territorial object — the most heavily guarded site in his domain.

Spawning behaviour, then, is preceded — and punctuated by — numerous attacks on the female. Spawning itself is dependent upon achieving close lateral contact between the partners (Fig. 8). Once this is achieved, the fish—with their heads and urogenital areas pressed side to side — begin to vibrate. Parts of their backs touch the underside of the territorial object. The pair may vibrate in one spot for several seconds before releasing eggs and sperm or, more typically, they may circle together below the object. During this "paired circling" they are often uncoordinated

— one fish may move faster than the other and lateral contact is often broken.

Finally, after a sufficient degree of vibratory stimulation is reached, spawning occurs. Positioning himself beneath the female now, the male pivots her body upwards, pressing her against the undersurface of the territorial object (Fig. 9). In doing so, he particularly uses the posterior part of the body (proportionately longer than the female's) and one of his pectoral fins, whose tubercles probably help maintain contact. The female emits one or perhaps several eggs, which adhere to the undersurface of the object. (They may also fall to the ground.) At approximately the same time the male releases sperm. Then he may resume spawning vibrations. He may also spawn with the same or a different female hours or days later. Once a spawning session is finished, the male chases the female from his territory and rigorously defends the eggs throughout their period of development, which lasts about 5 days. Once hatched however, the fry receive no care.

During the parental phase, site tenacity and territorial aggression are particularly pronounced and a male may remain banded for many hours at a time. The most striking change, however, is in the frequency of circling and nibbling behaviour. Laboratory studies have shown that a male contacts the undersurface of his object



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Fig. 8. Paired circling, in which spawning partners circle side-to-side just beneath the spawning surface. The male is on the left.



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Fig. 9. Pressing of the female against the spawning surface by the male (black head). At this time, egg emission by the female occurs. Already-spawned eggs are visible as diffuse gray blotches on the spawning surface above the female.

with his dorsal pad and lips much more often when eggs are present than when eggs are absent. Evidently spawning or the presence of eggs or both contribute to this impressive change in behaviour.

This change is of great adaptive significance. Frequent circling and nibbling keep the eggs clean and must agitate the water around the eggs, aiding in aeration. This latter function would be especially important in the slow, muddy water occupied by many fathead populations in Saskatchewan. Nibbling also seems to be the mechanism for removing fungused eggs — they are simply eaten and thus prevented from infecting the rest of the batch. Circling may facilitate hatching by sweeping emerging fry free from the egg mass.

Histological studies are clarifying the role of the dorsal pad in parental behaviour. Dr. Smith, at the University of Saskatchewan, Saskatoon, has found that the pad contains a large number of mucus cells, and that circling probably leaves a film of mucus on the eggs. This mucus may help to maintain osmotic balance in the eggs, and may protect them (and the male) from parasites. Its lubricating effect may also prevent egg damage as the batch is rubbed by the male.

The dorsal pad, along with the tubercles, banding and unique

behaviour of males, thus fits the adequately for a reproductive style involving strong territoriality and maternal parental care. Many questions about the fathead remain but, fortunately the species is an excellent subject for behaviour studies. Hardy and prolific fatheads tolerate considerable handling, poor oxygen conditions and extremes in pH and salinity. With simple adjustment of temperature and photoperiod, breeding can be induced in aquaria any time of the year. And in clear, shallow waters, using polaroid sunglasses, one can easily observe minnows in the field. Thus there are numerous opportunities for naturalists to learn more about the fathead minnow.

Acknowledgements. This article is based on a study financed by the National Research Council of Canada grant held by Dr. R. J. F. Smith. I am grateful to Dr. Smith for his advice throughout the project, and to Mr. Waddington and Mr. B. McMillan for help in preparing the accompanying illustrations.

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ELEPHANT STEW*

1 Medium-size Elephant

2 Rabbits, optional

Salt and Papper

Cut the elephant into small, bite-size pieces. Add enough brown gravy to cover. Cook over kerosene fire about four weeks at 465 degrees. This will serve 3,800 people. If more are expected, two rabbits may be added. But do this only in emergency; most people do not like hare stew.

*From *Conservation News*, Nov. 15, 1971

RED-WINGED BLACKBIRDS

Nesting Near Great Slave Lake, N.W.T.

by GARY L. KRAPU*

A general lack of information on the breeding biology of the Red-winged Blackbird in the Northwest Territories has prompted me to publish observations made while engaged in waterfowl research north of Great Slave Lake during the summer of 1968. Observations were made primarily in the subarctic taiga within a few miles of the Yellowknife Highway between Yellowknife and Rae, N.W.T. Low, rounded outcrops of Precambrian rock, muskeg bogs, and ponds of various sizes are the dominant features of the landscape in this area. Emergent aquatic cover is typically scarce. However, stands of cattail (*Typha latifolia*), sedge (*Carex* spp.) and horsetail (*Equisetum palustre*) occur in some ponds. Sedge mats and Ericaceous shrubs in varying stages of succession border the shoreline of many wetlands. A more detailed description of the vegetation of this general area is available elsewhere.^{5 6}

Breeding Chronology

Recent records indicate that Red-winged males arrive in the Yellowknife-Rae area in early May. Carbyn recorded the species on May 12, 1966,¹ and Trauger (personal communication) sighted the first spring arrivals on May 1, 1967, and May 4, 1968. In 1968, laying was underway by June 11 when two nests containing three and five eggs and several partially constructed nests were found. H. W. Murdy (unpublished notes) noted finding a nest with 4 eggs on June 11, 1962, and a nest with 3 eggs on June 8, 1965. Nests under observation in 1968 hatched by early July. An active nest still containing eggs was found on July 14 but

was later abandoned. Juveniles were sighted on several areas in July, and both males and females were observed feeding young. Departure of territorial males from ponds occurred gradually from mid-July into August; the last males were sighted on August 7. Small flocks of 1 to 10 migrating Redwings were observed flying southward from July 15 to August 22.

Nesting Densities

The Redwing is a common breeder in ponds along certain segments of the Yellowknife Highway between Yellowknife and Rae. In one 5-square-mile tract (1/2 mile wide by 10 miles long) from Mile 20 to Mile 30 of the Highway, territorial males were sighted on 24 of 96 ponds. Population densities ranged from 1-9 males on 20 ponds, 10-24 males on three ponds and 25+ males on one pond. Redwing density on this area appeared to exceed that along other segments of the highway between Yellowknife and Rae.

Nesting Ecology

Nests usually are in scattered stands of emergent vegetation over open water but occasionally occur in standing vegetation along the edge of the sedge mat (Fig. 1). Birds nesting in the sedge mat usually are in close proximity to others nesting over water. Territories are predominantly in cattail and sedge. However, a few males were observed defending territories within willow (*Salix* sp.) thickets standing in water, and William L. McDonald (personal communication) noted finding nests in this area in willows growing over water.

In addition to nesting in ponds, the species frequently is found in association with river systems in this

*U.S. Bureau of Sport Fisheries and Wildlife,
Northern Prairie Wildlife Research Center,
Dakota.



Red-winged Blackbird nesting area near the Yellowknife Highway, N.W.T. Although this photo was taken on July 14, 1968, new cattail growth was scarcely evident. Redwings were nesting both in the old cattail growth along the edge of the sedge mat in the foreground and in the more extensive cattail and sedge away from shore.

region. Redwings were present in willow and cattail of marshes along the Stagg River, and Robert G. Bromley (personal communication) found birds nesting in cattail at the Stagg delta located on the North Arm of Great Slave Lake. I observed Redwings nesting in cattails near Rae at the point where the Dorey River empties into Marian Lake. McDonald (personal communication) observed the species nesting up the Marian River, along the Mackenzie River from Great Slave Lake to Fort Norman, and at the mouth of the Taltson River. Stewart noted that these birds were fairly common in cattail sloughs along the Little Buffalo and Sass rivers south of Great Slave Lake.⁴ Redwings are scarce north and northeast of Yellowknife in the forest-tundra ecotone. The general lack of emergent aquatic vegetation in that area presumably is an important factor preventing the species from expanding its range northeastward.

The Redwing typically has adapted to a wide variety of habitats. However,

at the northern margin of its range in the Northwest Territories, it was not observed nesting away from water and was restricted to ponds with stands of emergent vegetation. Redwings near Great Slave Lake nest in habitat that appears very similar to that occupied by the Yellow-headed Blackbird at more southern latitudes where the species are sympatric. Miller notes that the Yellow-headed Blackbird nests only over standing water in emergent vegetation including willow.²

Human Influences

The impact of man on the distribution of the Redwing in the region in comparison to most other parts of its range probably has been small. However, some local changes in distribution apparently have occurred. Twelve wetland basins that were drained in the late 1950's during construction of the Yellowknife Highway had partially refilled by 1968. Stands of cattail had developed in eight of these ponds, all of which had

territorial males. Aerial photos taken shortly after highway construction indicated that these ponds were nearly devoid of cattail at that time. The Redwing was breeding in this region prior to habitat alteration by man because Preble saw adults and collected an immature male at Fort Rae, a few miles from the present town of Rae, in late July 1901.³

While the species is attracted to cattail stands of natural wetlands in this region, no Redwings were seen associated with cattail stands in small man-made ponds. Of 203 borrow-pit ponds along the Yellowknife Highway that were visited in 1968 and 1969, 46 had cattail stands but no males were occupying territories on these ponds. Nesting cover in cattail stands of borrow-pit ponds appeared adequate, suggesting some other factor(s) were responsible for the absence of Redwings there. Availability of food may have been involved. This hypothesis is based on the assumption that feeding is restricted primarily to aquatic sites. Field observations supported this belief. Borrow-pit ponds had fewer foraging sites and probably fewer potential foods since the water at these sites was largely devoid of submergent plants and bottoms were bare. Foraging activity in natural ponds was concentrated along the water line in

emergent stands of cattail and sedge and on the upper surface of floating water lily (*Nuphar variegatum*) leaves following their emergence in July.

Acknowledgments

I would like to thank David L. Trauger for supplemental information and Paul F. Springer, Robert E. Stewart, and Harold A. Kantrud for comments on the manuscript.

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Mallards

F. L. Lahrman

Records of the HARLEQUIN DUCK in Manitoba and Adjacent Regions

by MARTIN K. McNICHOLL*

Between 8:00 and 9:00 a.m., C.D.T., on October 5, 1963, two veteran Manitoba birdwatchers, William ("Bill") Adams and Perry Silverman (both now deceased), spotted a small diving duck in the fast flowing waters of the Assiniboine River immediately west of the footbridge crossing the river in Assiniboine Park, Winnipeg. After closely scrutinizing the bird, they concluded it was a female Harlequin Duck, the first Winnipeg record. The observation was verified a few minutes later by Herbert W. R. Copland, Andrew Heidrick, Harold V. Hosford, Peggy Lawson, the writer, and several others. As noted by Harold Hosford: "At rest, the bird appeared as a dull brown bird with three white spots on the head, one in front of the eyes, one in the auricular region and another larger one below the eyes. In flight there was a complete lack of any pattern on the body or wings."¹² These are characteristic features of the female Harlequin, as reported by most field guides.²⁶ In addition, the duck was in "fast water" and occasionally scrambled up on the rocks, habitat and behaviour typical of the species.^{20 16 7} The bird was seen again the following day by Peggy Lawson, but could not be located on October 7 by the writer and Ken Johannesson.

As the Harlequin Duck is a "rare transient" for Manitoba, a review of Manitoba records seemed worth while.¹⁰ The earliest Manitoba record was a bird cited by E. A. Preble and several other authors as having been "examined" prior to 1863 by Blakiston at York Factory.²⁸ Unfortunately, this record must

be regarded as hypothetical, as the precise locality where the bird was obtained is not clear. Preble also noted two early Hudson Bay and James Bay records, to which T. H. Manning offered no additions.¹⁸ The precise locality of neither record is known. However, there are recent sight records of single males at Churchill from July 11 to 14, 1970 and on June 2, 1971.^{27 9} In southern and central Manitoba, the first probable record was of three "brilliantly coloured little ducks" shot by Fred Ward at Shoal Lake in the spring of 1898 and identified several years later as Harlequins. Charles Holden reportedly had a male shot "many years ago" on Lake Manitoba about 1910.^{17 19} Another was observed by Kenneth Holden at Portage Creek in 1928.¹⁹ Twenty-two years later, on September 15, 1950, Lazar Partridge shot two immatures at Pi Lake, Big Eddy, north of The Pas, and took them to Sam Waller for identification.²³ One of these remains in Waller's Little Northern Museum at The Pas and the other is a study skin at the Manitoba Museum of Man and Nature (R. W. Nero, pers. comm.).³⁴ The next record was of a male near Ponemah Lake Winnipeg on June 4, 1961, with detailed observations made by Perry Silverman.¹⁹ A sight observation without details by Mrs. E. R. Pogue. One bird is available for Bagot in early June, 1969.²¹

Thus there are 10 records of this duck for Manitoba (Fig. 1). Of these, four involve specimens, although one of them may have been taken outside the province, and the identification of Ward's birds was not made while the specimens were available. Of the sight records, four (for Winnipeg, the two Churchill records, and Silverman's

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previous record) are all "acceptable," as the details are well documented, or the observation was confirmed by several people in each case. No details are known for the other two sight records. Thus, the Harlequin Duck is a rare species in Manitoba.

In Canada, the Harlequin Duck breeds in two widely separated areas: a western population in Yukon, British Columbia and the Rocky Mountains of southern Alberta, with additional summer records in Mackenzie; and an eastern population on southeastern Baffin Island, Labrador, parts of Quebec, and possibly Newfoundland.¹⁰ Migration is from these areas to the south. Although the Harlequin breeds in Rocky Mountain portions of Alberta.

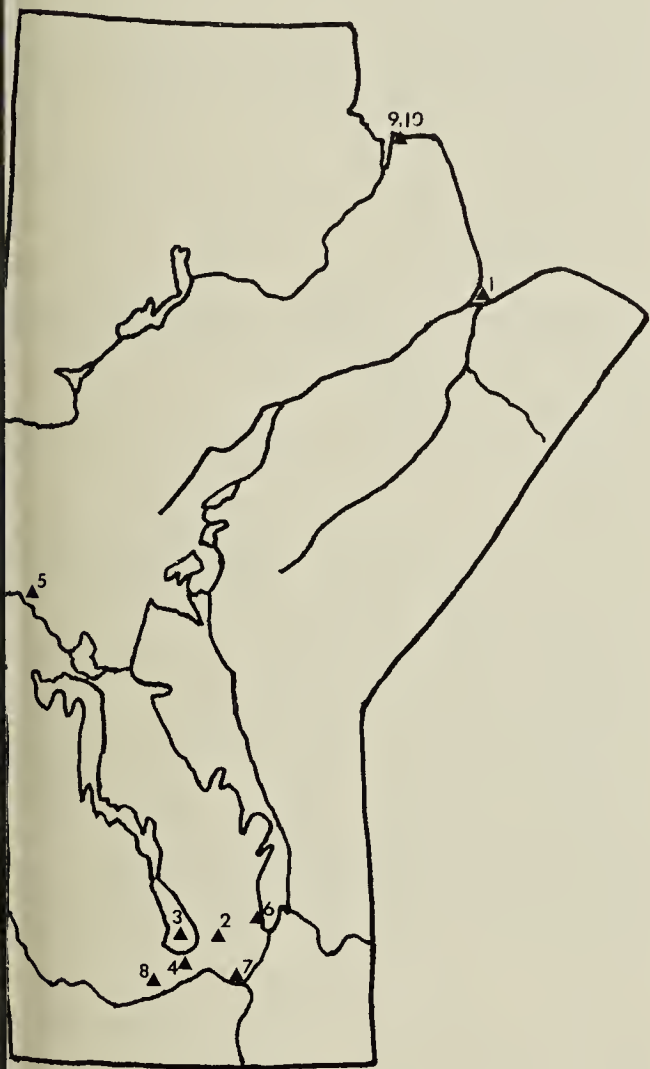


Figure 1. Locations of Manitoba records of the Harlequin Duck (numbered chronologically). 1. York Factory; 2. Shoal Lake (sometimes divided into three lakes); 3. Lake Manitoba; 4. Portage Creek (Delta area); 5. Big Eddy (Pike Lake); 6. Ponemah; 7. Winnipeg; 8. Bagot; 9. and 10. Churchill.

There are few prairie records.^{6 10} It is very rare in Alberta away from the mountains, with records at Cooking Lake, Beaverhill Lake, and Lake Athabasca.^{10 30} In Saskatchewan, "several pairs" were reported seen at Saskatchewan Landing, north of Swift Current on May 31, 1934.¹⁵ A male was shot by "one of Dick Hamilton's boys" at that time, and mounted by George Warren.¹⁵ Another reported for 1966 by M. M. Tremaine has not been included in subsequent reports, because of lack of details (M. Belcher, pers. comm.).³³ However, Dr. Tremaine, who is familiar with the species, took convincing details which she kindly sent me (pers. comm., 1968). The bird was a female seen on the Puskwakau River (54° 34' N, 103° 34' W) on July 13 and 14, 1966. Details noted included the three white spots (of which the top spot was fairly indistinct), the lack of white in the wing, and the dark colouration (similar to that of a female Surf Scoter). In 1968 three presumed males in eclipse were seen in Wascana Marsh, Regina on September 6, and additional sightings were made by several competent observers north of Regina on October 10, 22 and 23.⁵ Another male was observed and photographed by several observers in the Regina area from June 5 to 13, 1971.^{3 13}

There are also very few North Dakota records. The first record for the state was a specimen taken at Mandan about September 23, 1912,²⁴ and there have been sight records since, the most recent being a female seen at Valley City on October 5, 1971.¹⁴

To the east, the Harlequin may be increasing as a migrant or wintering bird. It has been considered very rare in Ontario in the past and even more recently.^{31 22 8 10} However, there have been several recent records, prompting C. E. Goodwin to comment, "this is yet another species which is becoming increasingly regular on the lower Great Lakes."¹¹ Although most Ontario records are from eastern areas, there are records from Port Arthur (now Thunder Bay) as early as the late 1880's, and from the Atikokan area on May 16, 1963.^{1 25} In Minnesota, T. S. Roberts had relegated it to the hypothetical list,

but added it to the state list as he went to press on the basis of an immature male shot on April 10, 1932.^{29 4} By 1966 there were 14 records, and several have appeared in *Audubon Field Notes*, *American Birds*, and *The Loon* since.²

I would like to thank Miss Margaret Belcher and Dr. Mary Tremaine for information they supplied for this note, Herbert W. R. Copland for a copy of the Lawrence reference, and Dr. Robert W. Nero for reading the manuscript.

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BREEDING RECORDS

Of 19 Species Of Birds In Southern Alberta

by NORBERT G. KONDLA and HAROLD W. PINEL*

Salt and Wilk state "... there are large gaps in our present knowledge and large areas of the province still to be explored ornithologically."⁴ The purpose of this article is to provide additional information on the breeding status of certain birds in southern Alberta, especially the area near Calgary. Table 1 provides details of nesting observations. The letters CFNS refer to observation forms of the Calgary Field Naturalists Society and the letters PNRS refer to cards on file with the Prairie Nest Records Scheme. We extend our sincere thanks to observers who have filed data with these organizations. Special thanks go to H. W. R. Copland for providing the opportunity to use the files of the Prairie Nest Records Scheme and to R. W. Fyfe and R. W. Nero for their valuable criticisms of the paper.

Red-necked Grebe. The breeding range as outlined by Salt and Wilk does not include southwestern Alberta in the vicinity of Calgary, although they did list a breeding record for Vermilion Lakes near Banff.⁴ Table 1 documents nesting sites at Boggy Lake, Irricana Lake, Chestermere Lake, Conrich, Norman Lake, Kangienos Lake, Calgary, Jasper, Madden, and Strathmore. Birds have also been seen during the breeding season at Bruce Lakes, Cochrane Lake, Boggy Lake and Bragg Creek. Based on his observations, Cowan feels that there is a very good possibility that this species nests at Talbot Lake, Jasper National Park.¹ Smith and Wershler mentioned breeding at Turner Valley.⁵

Western Grebe. There are no references in the literature to nesting in southwestern Alberta. Table 1 contains nesting records for two sites in southwestern Alberta, Namaka Lake and

Frank Lake. The Namaka Lake colony has been active since at least 1965.

Pied-billed Grebe. Until recently this bird was unknown as a breeding species in southwestern Alberta. Since 1965, nesting has been documented at Dewinton, Kangienos Lake, Standard, Norman Lake, 20 miles west of Calgary, 8 miles east of Airdrie, Cochrane, and Reesor Lake (Cypress Hills). Birds have also been seen during the breeding season at Elkwater Lake (Cypress Hills), near Chestermere Lake, Priddis, near Ghost Lake, Calgary, and Conrich. Smith and Wershler reported breeding at Vermilion Lakes and near Turner Valley.⁵

Double-crested Cormorant. A new colony was established on an island at Little Bow Lake in 1966. On July 31, 1966, the colony consisted of two nests, one was vacant, the other contained two deserted eggs. On May 18, 1968, one nest contained three eggs, the others (not counted) were empty. Three nests with eggs in 1969 and six nests with eggs in 1970 were noted. On June 20, 1970, 19 young were seen on the island and on August 1, 1970, 23 young were seen in nests and along the shore. No observations were made in 1971. On May 21, 1972, 12 birds were seen on nests in willows on a different island. At this time all the islands were under water as a result of exceptionally high water levels.

Redhead. Published nesting records for southern Alberta include only the Brooks region. Recent observations indicate that Redheads nest widely and regularly in southern Alberta. Nesting has been documented at Standard, Langdon, Little Bow Lake, Chestermere Lake, Stobart Lake, Eagle Lake and Strathmore. In addition, birds have been seen during the nesting season in suitable habitat at Boggy Lake, Vermilion Lakes, Calgary, Woodhouse,

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Red-necked Grebe

R. E. Gehlert

Priddis, Chain Lakes, Chestermere Lake, Cochrane, Irricana, Deadhorse Lake, Parkland, Frank Lake, Kathryn, 10 miles north of Hussar and Bassano.

Ring-necked Duck. The known nesting area has been confined to the northern half of Alberta. Recently, however, nesting has been confirmed at Pine Lake, Norman Lake, west of Nanton, and Scott Lake. Smith and Wershler report nesting for Turner Valley.⁵ Sight records during the nesting season have been made at Waiparous Creek, Sylvan Lake, Rocky Mountain House, Chain Lakes, Bragg Creek, Conrich, Priddis, Irricana, Millarville and Crossfield.

Canvasback. This bird is not listed as a widespread nesting species in southern Alberta.⁴ However, there are recent records from Conrich, Delacour, Baintree, Eagle Lake, Consort, Calgary, Strathmore, Standard and Langdon. Canvasbacks have also been seen in suitable habitat during the nesting season at Big Hill Springs Park, Vermilion Lakes, Stavely, Irricana, Parkland, Frank Lake, Deadhorse Lake,

Blizzard Lake and 10 miles north of Hussar.

Common Goldeneye. In Alberta, this bird has previously not been known to nest on the prairies or in the mountains. Kondla observed a female with a brood of downy young on June 14, 1971, on a small reservoir near Dinosaur Provincial Park and a moulting adult in the park on July 22, 1971. Smith and Wershler (CFNS) report a pair with eight immatures at Elkwater in the Cypress Hills on July 23, 1967. It has also been seen during the breeding season at Strathmore, Bruce Lakes, Boggy Lake, Cremona and Calgary.

Ruddy Duck. A nest found by Pinel on June 18, 1970, at Norman Lake contained seven eggs and appears to be the westernmost nesting record in southern Alberta.

Common Merganser. According to Salt and Wilk, accurate nesting records away from the mountains are few.⁴ Two adults and four downy young were seen by Pinel on June 16, 1970, at Calgary on the Bow River. On June 29, 1972, a female with 14 flightless young was ob-

served by Pinel in the same area. W. Smith (PNRS) found a nest containing nine eggs on May 11, 1968, at Priddis. R. Fyfe and R. Semeniuk observed a brood of young with adults on July 4, 1971, approximately 12 miles northeast of Medicine Hat along the South Saskatchewan River (R. Fyfe, pers. comm.). These observations appear to constitute the easternmost nesting records for this species to date in southern Alberta.

Piping Plover. Salt and Wilk list six known nesting sites in central Alberta.⁴ In addition, it has been found nesting at Dowling Lake,⁷ and at Goosequill Lake on June 15, 1972, when Kondla and W. Smith found a nest containing four eggs on an island with a small colony of American Avocets.

Solitary Sandpiper. An extension of the breeding range is indicated by the discovery of two nests, one on May 30, 1967, and the other on June 6, 1968, near Bragg Creek by Kondla. Both nests contained four eggs, and, in each case, an old Robin's nest in a spruce tree was utilized.

Greater Yellowlegs. M. Christman, H. Rucastle and N. Winnick found a nest with four eggs on July 13, 1964, at Boggy Lake (PNRS). M. Christman and H. Rucastle also found two young on July 14, 1964, at Water Valley. We have seen it regularly at Kangienos Lake, Norman Lake and Bragg Creek. Previously, this bird was not known to nest in the foothills west of Calgary.⁴

Lesser Yellowlegs. Although we know of no nests having been found in the foothills west of Calgary, we have found this species defending territories during May and June at Kangienos Lake, Norman Lake and Bragg Creek.

Black Tern. Salt and Wilk report no nesting records west of Calgary in southern Alberta.⁴ Actually, they are fairly common, but local, in the foothills. A nesting colony was found at Norman Lake in the foothills by Pinel. On June 22, 1969, three nests in the colony each contained three eggs.

Saw-whet Owl. On April 17, 1968, the authors found a nest 4 miles north of Beynon containing six eggs in an old Flicker hole 9 feet high in a stump. This



Saw-whet Owl

R. E. Gehlert

nesting record is extralimital based on the known breeding range in Alberta.

Pileated Woodpecker. Storer and Wilson report a sighting during the breeding season at Bleriot Ferry.⁶ We observed this species near Beynon on May 8, 1965, in the vicinity of large holes in power poles. Another Pileated Woodpecker hole was found on April 17, 1968, in a large balsam poplar stump in a coulee north of Beynon. Kondla and Smith saw this species regularly at Tolman Ferry and in Dry Island Buffalo Jump Park in May, 1972. These observations suggest that it nests in the wooded portions of the Red Deer River valley south to the Drumheller region.

Blue Jay. This bird was recorded throughout 1959 at Beynon.² In 1959 a pair nested at Janet in a spruce tree in a windbreak around a farm.³ Since 1965, eight observations have been made during the breeding season near Calgary and Drumheller. These observations suggest that Blue Jays nest in small numbers in the foothills west of Calgary and in the wooded coulees adjoining the Red Deer River as far south as the Drumheller area.

TABLE 1 — Extralimital Nesting Records of Certain Bird Species in Southern Alberta. (Note: Records without either PNRS* or CFNS* after them refer to observations made by the authors and not on file).

Locality	Date	Comments	Observer
Red-necked Grebe			
N.E. corner of 3rd Vermilion Lake	May 26, 1965	5 eggs	T. Sadler (PNRS)
12 mi. S. 1/2 mi. W. Strathmore	June 22, 1965	nest 40' from N. shore	G. Freeman (PNRS)
10 mi. E. Calgary	May 13, 1966	1+ eggs	T. Sadler (PNRS)
Pond near Kangienos Lake	June 12, 1966	4 eggs	N. Kondla, J. Shier, A. Shoults (PNRS)
Madden	June 22, 1969	3 eggs	I. Halliday, W. G. McKay (PNRS)
Madden	June 22, 1969	1 egg	I. Halliday, W. G. McKay (PNRS)
Jasper	June 27, 1969	incubating eggs	C. W. Morehen (PNRS)
2 mi. E. Irricana Lake	May 27, 1970	3 birds, nest with 2 eggs	B. Jones, M. T. Myres, D. V. Weseloh (CFNS)
Norman Lake	June 18, 1970	adult bird on nest	H. Pinel
15 mi. N.W. Calgary	July 13, 1970	5 nests where incubating occurring	B. Baker (PNRS)
Chestermere Lake	June 23, 1971	2 females on nests	B. and V. Lang (CFNS)
Slough near Conrich	June 1, 1972	1 bird on nest	V. Lang (CFNS)
Western Grebe			
Namaka Lake	June 30, 1965	3 eggs (about 30 pairs nesting)	N. Kondla, J. Shier (PNRS)
Namaka Lake	July 6, 1967	2 nests, 1/e and 2/e	W. E. McKay (CFNS)
Namaka Lake	June 8, 1968	many birds, 1 nest with 4 eggs	N. Kondla
Frank Lake	July 15, 1972	4 adults, 3 downy young	V. Lang, R. Palindat (CFNS)
Pied-billed Grebe			
20 mi. W. Calgary	June 14, 1965	8 eggs	J. Shier (PNRS)
Kangienos Lake	June 11, 1966	7 eggs	N. Kondla
Cochrane	June 12, 1966	4 eggs	A. Shoults (PNRS)
8 mi. E. Airdrie	June 13, 1966	9 eggs	A. Shoults (PNRS)
Standard	June 9, 1968	1 egg	N. Kondla
Reesor Lake	Aug. 21, 1969	1 young	R. and S. Cannings (PNRS)
Norman Lake	June 18, 1970	5 eggs	H. Pinel
Slough near Dewinton	July 15, 1972	1 adult, 4 large downy young	V. Lang, R. Palindat (CFNS)
Redhead			
Slough near Stobart Lake	June 24, 1965	9 eggs	J. Shier (PNRS)
Eagle Lake	May 27, 1966	10 eggs	A. Shoults (PNRS)
Chestermere Lake	June 3, 1966	14 eggs	A. Shoults (PNRS)
Chestermere Lake	June 20, 1966	17 eggs	A. Shoults (PNRS)
Chestermere Lake	June 20, 1966	7 eggs	A. Shoults (PNRS)
2 mi. N.E. Standard	June 2, 1968	10 eggs	N. Kondla
2 mi. S.S.E. Langdon	May 31, 1969	13 eggs	H. Pinel (PNRS)
2 mi. S.S.E. Langdon	May 31, 1969	22 eggs	H. Pinel (PNRS)
2 mi. S.S.E. Langdon	May 31, 1969	11 eggs	H. Pinel (PNRS)
2 mi. S.S.E. Langdon	May 31, 1969	12 eggs	H. Pinel (PNRS)
2 mi. S.S.E. Langdon	May 31, 1969	10 eggs	H. Pinel (PNRS)
2 mi. S.S.E. Langdon	May 24, 1970	10 eggs	H. Pinel
Little Bow Lake	May 28, 1970	11 eggs	N. Kondla (PNRS)
2 mi. S.S.E. Langdon	May 31, 1970	14 eggs	H. Pinel
Little Bow Lake	June 6, 1970	8 eggs	H. Pinel
2 mi. S.S.E. Langdon	June 21, 1970	8 eggs	H. Pinel
2 mi. S.S.E. Langdon	June 21, 1970	10 eggs	H. Pinel

Table 1 (Continued)

Locality	Date	Comments	Observer
Ring-necked Duck			
Pine Lake	June 5, 1966	11 eggs	N. Kondla, A. Shoults (PNRS)
10 mi. W. Nanton	June 13, 1966	fully formed egg in dead female	T. Sadler (CFNS)
Slough near Scott Lake	July, 1968	female with 7 chicks	T. Sadler (CFNS)
Norman Lake	July 22, 1969	8 eggs	N. Kondla, H. Pinel
Norman Lake	June 24, 1970	7 eggs	H. Pinel
Canvasback			
5 mi. W. 1 mi. N. Strathmore	May 15, 1964	11 eggs	T. Sadler (PNRS)
5 mi. W. 1 mi. N. Strathmore	May 15, 1964	1 egg	T. Sadler (PNRS)
Calgary	June 2, 1964	10 eggs	H. Pinel
Eagle Lake	June 12, 1964	5 eggs	J. Shier (PNRS)
15-1/2 mi. S.E. Consort	July 10, 1966	4 young	J. Eisenhower (PNRS)
2 mi. N.E. Standard	June 2, 1968	2 nests; 1/8e, 1/9 e	N. Kondla
2 mi. S.S.E. Langdon	May 31, 1970	1 egg	H. Pinel
1/4 mi. N. Baintree	May 22, 1971	8 eggs	H. Pinel, C. Wallis (PNRS)
3 mi. N.W. Conrich	June 17, 1972	female with 8 newly hatched young	B. and V. Lang (CFNS)
5 mi. E. Conrich	June 18, 1972	female with 5 newly hatched young	V. Lang (CFNS)
6-1/2 mi. S. Delacour	July 10, 1972	female with 6 young female with 7 young	V. Lang (CFNS)

*PNRS: Prairie Nest Records Scheme; CFNS: Calgary Field Naturalists Society observation forms.

Long-billed Marsh Wren. There are no nesting records in Alberta south of the city of Red Deer except for Lake Newell near Brooks. However, in June of 1970 and 1971, birds were heard singing at Namaka Lake and near Langdon. Pinel found two nests near Langdon, one on June 15, 1970, and the other on June 21, 1970. The nests contained five and seven eggs, respectively.

¹COWAN, I. T. 1955. *Birds of Jasper National Park, Alberta, Canada*. Wildlife Management Bulletin, Series 2 No. 8. Queen's Printer, Ottawa.

²EDMONTON AND CALGARY BIRD CLUBS. 1959. *Alberta Bird Report*.

³EDMONTON AND CALGARY BIRD CLUBS. 1960. *Alberta Bird Report*.

⁴SALT, W. R., and A. L. WILK. 1966. *The birds of Alberta*. Govt. of Alberta, Dept. of Ind. and Devel. Queen's Printer, Edmonton.

⁵SMITH, W., and C. WERSHLER. 1969. *Some 1968 southern Alberta bird observations*. *Blue Jay*, 27, 88-92.

⁶STORER, J. E., and M. WILSON. 1972. *Pileated Woodpeckers near Drumheller, Alberta*. *Blue Jay*, 30: 97.

⁷VERMEER, K. 1971. *Large American Avocet clutches at Dowling Lake, Alberta*. *Blue Jay*, 29: 88.

SEVEN WARBLERS

In Riding Mountain National Park, Manitoba

by W. J. WALLEY*

Publications on the status of warblers in Riding Mountain National Park during the past 25 years are lacking. The latest complete report was given by J. D. Soper who studied the birds of the park at intervals from 1940 to 1946.⁶ In establishing the status of each species, he also included the observations of R. Sutton and A. H. Shortt in 1938 and those of Sutton in 1939 as well as additional information given by Taverner and Sutton.⁷

The north slope of the park provided an unusual opportunity for bird studies. Diverse habitats occurring at different elevations within a relatively short distance made comparative studies possible. This was especially true of the warblers because of their abundance. Furthermore, few, if any, published observations have been made on the birds of this area. None of the above investigators worked on the north slope of the park.

Study Area

Three habitat types were recognized on the north slope. These included:

1. Dense deciduous forest starting at 1,250 feet a.s.l. This habitat was dominated by trembling aspen (*Populus tremuloides*) with paper birch (*Betula papyrifera*) dominating in the gorges near the base of the main slope.
2. Mixed coniferous and deciduous forest in gorge terrain starting at 1,725 feet. In addition to the aforementioned species, balsam poplar (*P. balsamifera*), white spruce (*Picea glauca*) and alders (*Alnus* sp.) occurred in this habitat.
3. Mixed forest with some muskeg at 2,225 feet. In addition to all of the

above species, stands of tamarack (*Larix laricina*) and black spruce (*P. mariana*) occurred in and near the muskegs in this area.

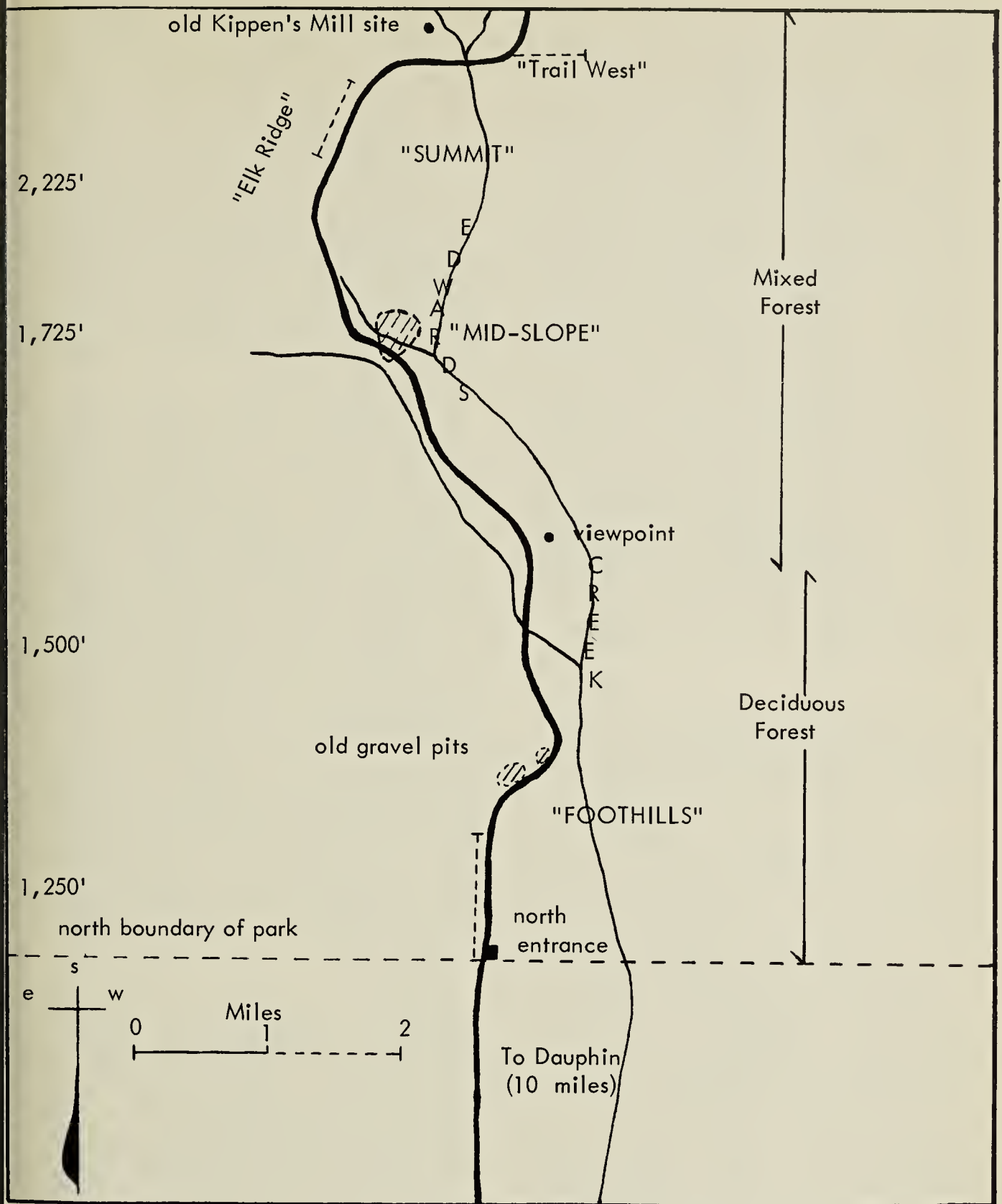
An important feature of the vegetation was the dense stands of hazelnut (*Corylus* sp.) which occurred in all habitats, but to a much lesser degree under the canopy of the deciduous forest. In the order listed above, the three habitats were approximately 300, 775 and 1,275 feet above the surrounding aspen parkland. For the purpose of this report, at times, these habitats will simply be referred to as the Foothills, Mid-slope and Summit habitats, respectively (Fig. 1).

The objectives were to determine the species of territorial warblers present and their relative abundances in the three habitats.

Methods

In the spring and summer of 1971 and 1972 the warblers of the north slope of the park, near No. 10 Highway, were studied. All three habitats were studied in 1970 and 1971 but the specific study areas each year were not the same in all cases. In the Foothills in 1971, a transect was run by foot, bicycle and automobile along the highway for 1 mile south of the north entrance of the park. In 1972, two large clearings located 1-3/4 to 2 miles south of this entrance and adjacent to the highway on the east side were selected. These were actually old gravel pits where willows (*Salix* sp.) and dense growths of grasses characterized the seral stage of succession. Edward's Creek passed within 75 yards of the highway on the west side. At Mid-slope, an area of approximately 15 acres was selected in

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Study areas along Highway 10, north slope, Riding Mountain National Park

the gorge terrain of that habitat. Trails established there were used both years. In the Summit habitat, two 1/2-mile transects were used in 1971. These included the assumed names "Elk Ridge" and "Trail West". In 1971, only the former transect was used, but observations were made in the forest near the site of the old Kippen's Mill area (Fig. 1).

In 1971 studies were carried out

weekly from late April when Myrtle Warblers began to arrive until July 1 and then at least bi-weekly until mid-July when the males stopped singing. In 1972 observations were made over the same period of time but more frequently. In the 2 years, 61 trips were made during these periods. In addition, irregular visits were made until late fall.

Territories were based on the con-

sistent occurrence of singing males during the breeding season. These birds were assumed to be breeding, but other indications were noted. These included actual observance of both sexes, alarm behaviour consistently displayed in response to my presence, food carrying and intra- and inter-specific conflicts. Adjacent territories were differentiated by listening to the respective males at the same time. Numbers of territories for all species of warblers were recorded for 1971. In 1972, the territories of all species covered in this paper except the Chestnut-sided Warbler were recorded, but percentages of total pairs could not be given. In some cases certain territories which may have actually been two adjacent territories were not differentiated. Such species are shown in Table 1 as having, e.g., (5-7) territories, meaning at least five and possibly as many as seven.

In 1972, a Sony cassette tape recorder was used to play back previously recorded songs of some species to further locate and define territories.

In addition to the observations made on the north slope, many trips were made to other parts of the park, particularly near the north shore of Clear Lake. Also, considerable data has been provided by Park Naturalist R. J. Walker who has kept records of birds since 1965 (to 1972), particularly in the Clear Lake area but also elsewhere in the park other than the north slope. Park Warden R. T. Dowhan has also provided data on his sightings since 1966. The results reported are only those which were found to be different from the previous known status of the warblers of the park.

Results and Discussion

Golden-Winged Warbler

This species was first recorded in the park on June 15, 1967, when the late J. L. Baillie of the Royal Ontario Museum and R. J. Walker identified it on the eastern boundary of the park about 4 miles southwest of McCreary.

On that date, a male was sighted in an aspen and a second bird, the sex of which was not determined, was identified by song in scrubby burr oak (*Quercus macrocarpa*). On June 7, 1968, in the same area, R. J. Walker and D. R. M. Hatch identified two males and a female in scrubby burr oak associated with a dense understory of shrubs (Walker, pers. comm.). R. T. Dowhan (pers. comm.) noted an individual of this species in a mixed flock in the eastern sector of the park on May 24, 1972.

In 1971, two pairs were located on the north slope. On June 27 a female foraged in a birch in a clearing at Mid-slope. The pair was seen on July 1 and 4, the female on July 3 and 10 and the male on July 9. At all times the birds appeared to be collecting food and were often seen carrying caterpillars. The male of the second pair was located on July 9 on the Elk Ridge transect in the Summit habitat. Although there was muskeg in this habitat, it did not occur in this particular area; this clearing in the forest contained dense stands of hazelnut. On July 13, the pair was seen flitting between the birches at the edge of the clearing and the hazelnut for about 5 minutes. Efforts to locate the nest were unsuccessful.

In 1972, the species was first identified by song on May 20 in the Foothills and Summit habitats. The following day a singing male, A, was located in the Foothills some 300 yards from where a singing bird was heard the previous day. This bird was perched in an aspen near a few burr oaks at the edge of the highway right-of-way clearing. When its song was played back, it immediately flew toward me, passing within 10 feet, and perched in some shrubs on the opposite side of the highway clearing. It then flew back across the highway and perched in an aspen. This behaviour continued for as long as its song was played. In all, approximately 20 flights were made across the highway clearing, sometimes passing within 4 feet of me.

On May 24 a male, presumably A,

Table 1. Summer status of certain warblers on the north slope, Riding Mountain National Park, 1971 and 1972

Species	Habitat Type											
	Deciduous Forest						Mixed Forest					
	Foothills (1250')						Mid-slope (1725')					
	1971 (Aspen Forest Along Hwy. 10)	1972 (Edges of Clearings)	Current Status	1971	1972	Current Status	1971	1972	Current Status	1971	1972	Summit (2225')
	Pairs	% ^a	Status or prs.	Pairs	% ^a	Status or prs.	Pairs	% ^a	Status or prs.	Pairs	% ^a	Status or prs.
Golden-winged Warbler	0	0	2	Uncommon (at edges of clearings)	1	2.2	Absent	Rare	1	1.2	Absent	Rare
Cape May Warbler	See Text											
Black-throated Green Warbler	0	0	Absent	Absent	9	20.0	(4-7)	Common to abundant	5	6.0	(6-8)	Common
Chestnut-sided Warbler	4	18.2	Same ^b Status	Common	9	20.0	Same ^b	Abundant	21	25.0	Same ^b	Abundant
Canada Warbler	0 ^c	0 ^c	2	Common in gorges above streams	3	6.7	2	Common at crests of gorges above streams	1	1.2	2	Uncommon to common

a - % = percent of total pairs of all warblers in this habitat.

b - same status as in 1971.

c - one pair occurred just outside the study area in 1971.

was seen singing in an aspen at the edge of the old gravel pit within 50 feet of where it was observed on May 21. Shortly after it was sighted, a second male appeared moving through a stand of shrubs. Immediately, A intercepted this intruder and a skirmish ensued near the ground among the shrubs. After several seconds, two birds emerged from the stand, one chasing the other. A third bird followed. All were Golden-winged Warblers but the sex of each was not determined as only two birds were seen at once during the skirmish; no female was identified. Ten minutes later a male, presumably A, was back on the aspen singing again. Other Golden-wings were not seen in this immediate area again.

On May 28, male A was singing in what was now believed to be its territory in the old gravel pit. A second male, B, which had established territory about 300 yards south of A, was also located in a gravel pit. In the early morning of June 5, a male Lazuli Bunting or possibly a Lazuli-Indigo Bunting hybrid (pale, thin band of chestnut on the upper part of the breast) was seen nearby. When B approached to within 25 feet the bunting attacked the warbler and a conflict ensued that lasted about 8 seconds. The bunting then withdrew and the warbler continued to sing from what appeared to be its main singing post — a dead birch. On June 11 this post was occupied at the same time by B and a male Indigo Bunting. Both males continued to sing from this dead tree for the remainder of the breeding season but no conflicts were observed.

On June 24 a male was seen and heard in a clearing some 250 yards east of A's territory, but outside the actual study area. Whether this was a third territorial male or part A's territory was never determined. Females were not positively identified in 1972 but on July 27 a female or juvenile was seen foraging in B's territory.

From the observations made on the north slope, especially those of 1971 when both sexes were seen together through the height of the warbler

breeding season, it is very probable that the Golden-winged Warbler is breeding in the park.

Cape May Warbler

Taverner and Sutton described this species as an uncommon migrant. Soper gave it the same status and noted the occurrence of three singing males near Swanson Creek in the eastern part of the park on June 3 and 4, 1941.⁶ R. T. Dowhan (pers. comm.) states that the Cape May is quite conspicuous in spring migration, often occurring in small flocks, but he has not recorded it in summer. R. J. Walker (pers. comm.) has noted it frequently in spring migration and sometimes in numbers. On May 28, 1967, he counted 11 males and 7 females between 9 a.m. and 12:50 p.m. as they moved along the isthmus between Clear and South lakes in a westerly direction in a massive migration with 10 other species of warblers.

Recent observations indicate that the Cape May is becoming established as a summer resident in the park (Table 2). On June 3, 1972, the author and R. J. Walker located a singing male on the Maa-ee-gun nature trail near the north shore of Clear Lake. This habitat consisted of semi-open white spruce and balsam fir (*Abies balsamea*) forest. The spruce, at the tops of which the male was sighted, was taller than any known stand in the park and reached heights of over 90 feet. On June 18 when the area was revisited and the song of the Cape May was played back, the male appeared within 8 minutes and descended to within 10 feet of the ground and within 25 feet of the tape recorder. Its displacement behaviour strongly indicated territorialism. This is the only park record of a territorial male occurring in a particular area over an extended period of time. The juvenile identified by R. J. Walker in Wasagaming on July 26, 1972 (Table 2), further indicates that the species is probably breeding in the park. The observation of a male foraging in an aspen in deciduous forest (Table 2) on July 16, 1972, is unusual as it

generally associated with conifers. The closest stand of conifers to this male was over 2 miles away.

Black-Throated Green Warbler

There were few records of this species for the park prior to the current observations. Soper recorded a singing male at Swanson Creek on June 1941, and three singing males and a female there in 1942.⁶ A single bird was seen near Moon Lake, located about 5 miles south of the Summit habitat, on August 30, 1946, by Bannard.¹ R. J. Walker (pers. comm.) did not positively identify this species until 1971, but R. T. Dowhan (pers. comm.) reports seeing or hearing this species in the park every year since he arrived in 1966. He states that it occurs as a summer resident. Both agree that this warbler occurs in scattered colonies in the southern and eastern parts of the park.

The current status of the Black-throated Green in the different habitats on the north slope is given in Table 1. In the gorge terrain of the mixed forest at Mid-slope in 1971, it was the most abundant species along with the Chestnut-sided Warbler. Its common to abundant status for both years in this habitat and its common status over this period in the Summit habitat is most striking in the light of its previous scarcity.

While a nest was not located, evidence strongly indicates breeding. Considerable alarm behaviour was consistently noted in different females at the height of the breeding season, especially in 1971. At such times, these females would often be carrying food (caterpillars) and would not proceed to the nest as long as I remained in the area. Displacement activity, including scolding, fidgeting (unusually quick movements) and abnormally close ap-

Table 2. Summer occurrence of the Cape May Warbler in Riding Mountain National Park¹

Date	Numbers	Sex	Location	Notes	Observer(s)
Summer Residents — observed only once					
July 9/68	1	male	Wasagaming	Hit office window then flew off	R. J. Walker
July 16/72	1	male	Wasagaming	Singing in top of White Spruce	R. J. Walker
July 19/72	1	male	North boundary of park near Hwy. 10	Foraging in aspen forest	W. J. Walley
July 20/72	1	sex undetermined	Near Clear Lake	Captured and released	J. Saquet & R. J. Walker
July 26/72	1	juvenile	Wasagaming	Foraging in elms	R. J. Walker
Summer Residents — observed more than once in the same area					
June 3 & 4/41	3	males	Swanson Creek (eastern part of the park)	Singing in trees	J. D. Soper
June 3 & 18/72	1	male	Near Ma-ee-gun nature trail (near north shore of Clear Lake)	June 3: Singing in tall White Spruce June 18: Responded to taped song	W. J. Walley & R. J. Walker W. J. Walley

appearing after June 1 and before August 15

proaches to the ground, was noted. This behaviour always continued until I withdrew from the area. On one occasion it last for over 25 minutes. On August 8, 1972, a female was seen feeding an immature in a balsam poplar at Mid-slope.

Response to the play-back of its song on the tape recorder brought dramatic results. Normally occurring high up in conifers, males were often drawn down to the shrub layer near the ground to investigate the intruder.^{3 4} Usually they approached to within 10 feet of the tape recorder, but on one occasion the male perched on a small branch about 2 inches above the speaker and peered in!

Chestnut-Sided Warbler

Previous records indicate that this species was common only locally. Taverner and Sutton found it to be numerous south of Clear Lake but Soper states that only "a few breed locally on Riding Mountain" and it "cannot be regarded as generally common".^{6 7} However, R. J. Walker (pers. comm.) notes that it has occurred in abundance in most habitats in the park, at least since the mid-sixties.

On the north slope, territorial pairs indicated that it was abundant in the mixed forest types in both years (Table 1). Its success in this habitat was no doubt due to the dense shrub layer of hazelnut where it was often seen and where two nests were found at Mid-slope in 1971. The first nest was located on June 22 about 3-1/2 feet from the ground at the edge of a wild ungulate (Wapiti and Moose) path. It contained two young birds and two eggs. William Clark found the second nest. It had two eggs on June 27 and four on July 1.

In 1972 observations indicated that it was again abundant in the mixed forest types and common in deciduous forest. One nest, found in the Foothills habitat on June 11, contained five eggs. It was located in a black current (*Ribes americanum*) surrounded by other shrubs and ferns. It was 1-1/2 feet above the ground in the under-story of a nearly closed canopy forest.

Five young birds hatched and were last seen on June 26. The nest had been vacated by July 3.

The song of this species was also played back and the resulting displacement behaviour of the male was positive and vigorous.

Canada Warbler

Earlier workers reported this species only as a migrant. Traverne and Sutton found that it occurred as a regular spring migrant and possible breeder.⁷ Soper stated that "according to the records, this is a rare warbler in the park where it was seldom observed in migration and never in summer".⁶

R. T. Dowhan (pers. comm.) reports that he has never identified it in the park, but admits to not knowing its song. R. J. Walker (pers. comm.) has seen it only twice in the park after June 1; only one pair was observed more than once. On July 1, 1972, a male and female were seen in thick elms (*Ulmus americana*), ash (*Fraxinus pensylvanica*), aspen, balsam poplar and paper birch woods along the bank of the Dead Ox Creek on the Burls and Bittersweet nature trail in the southeastern part of the park. Attention was drawn to the birds by the scolding of Red-eyed Vireos. These warblers were again seen in this area on July 2 and 23. The other observation was made near McKinnon Creek, also located in the southeastern sector, when a territorial male was sighted on the edge of a gorge above Packhorse Creek on July 1, 1966.

Records of the Canada Warbler on the north slope are given in Table 1. In the summer of 1971, four pairs were located in the study areas and another pair just outside of them in the Foothills habitat. The following summer, six territorial pairs were found and four other isolated singing males were heard or seen, but only once.

Of the 10 pairs located in the years, seven were associated with gorges above streams, particularly the crests of these gorges. Vegetation was usually either sparsely spaced birch

ruce and aspen with dense stands of hazelnut, or alders and willows closer, but not at the immediate edges of, meadows. Of the four different males identified once in 1972, two occurred in this type of habitat. Two other pairs and two isolated males occurred in the summit habitat near small muskegs.

Both sexes were observed on territory more than any other species. They displayed extreme territorialism in response to the play-back of their singing. The birds appeared within seconds of starting the play-back and they would constantly dart from one song to another staying close to the ground and keeping up a constant series of distress calls. On one occasion one member of a pair dove at the tape recorder, passing within 3 or 4 inches of it; it was not determined whether this was the male or female.

The summer status of this species has changed in the park. Not only is it common in its preferred habitat, at least on the north slope, but its behaviour strongly indicates that it is breeding.

Notes on other species

Wilson's Warbler

Soper did not record this warbler during his years of study in the park, but Taverner and Sutton described it as a common migrant and possible breeder.^{6 7} In 1921, P. A. Taverner and Hoyes Lloyd stated that "Between August 13 and 23, singles were seen at Riding Mountain . . ."²

Wilson's Warbler was not recorded during the breeding season in the present study, but on August 7, 1972, approximately 1-1/2 miles up Edward's Creek from Mid-slope, between 8 and 10 individuals of this species were seen by the author. These birds were in a mixed flock of at least 10 other species of warblers. It was interesting to note that all 10 of the other species were known summer residents of the park and that the author did not record the arrival of the usual fall migrants on the north slope until Sep-

tember 2 when Myrtle and Blackpoll warblers appeared.

Black-Throated Blue Warbler

In mid-morning of September 17, two plain, unstreaked and greyish-olive-backed warblers were seen moving through the lower part of a stand of shrubs in the Foothills habitat. Both of these birds displayed distinct spots of white at the bases of the primaries. According to Peterson's *A Field Guide to the Birds*, the white spots are unique and, therefore, diagnostic for this species.⁵ As this warbler had never before been identified in the park, the author wrote to W. E. Godfrey of the National Museums in Ottawa. The following is an excerpt from his reply: "With regard to the small warblers you have seen which show a white spot at the base of the primaries, I think that it is quite likely that they were indeed Black-throated Blue Warblers. . . . I assume that the puzzling warblers you saw were females. They are plain, unstreaked and look a little bit like Tennessees and several others. However, the little wing spot at the base of the primaries readily identifies the Black-throated Blue Warbler. The males, of course, are unmistakable."

If these birds were indeed Black-throated Blue Warblers, it is the first record for the species in Riding Mountain National Park.

Acknowledgements

I am most grateful to R. J. Walker for the use of his data and for the use of the Taverner and Sutton manuscript as well as the Banfield field notes. Many thanks are also extended to R. T. Dowhan for the use of his data, to W. E. Godfrey for his opinion of the sighting of the Black-throated Blue Warbler and to Jim Ramsay for his assistance in reproducing the figure in the paper.

⁵BANFIELD, A. W. F. 1946. *Field notes from an investigation of an irruption of elk, Riding Mountain National Park*. Dept. of Indian Affairs and

Northern Development, Wasagaming, Manitoba. Unpublished manuscript.

²GODFREY, W. E. 1953. *Notes on the birds of the area of intergradation between eastern prairie and forest in Canada*. Nat. Mus. of Canada, Bull. 128: 189-240.

³MACARTHUR, R. H. 1958. *Population ecology of some warblers in northeastern coniferous forests*. Ecology, 39: 599-619.

⁴MORSE, D. H. 1967. *The context of songs in black-throated green and blackburnian warblers*. Wilson Bull., 79: 1-128.

⁵PETERSON, R. T. 1956. *A field guide to the birds*. Houghton Mifflin Co., Cambridge. 161 p.

⁶SOPER, J. D. 1953. *The birds of Riding Mountain National Park, Manitoba, Canada*. Can. Wildl. Serv., Wildl. Mgt. Bull. Series 2, No. 6. 54 p.

⁷TAVERNER, P. A., and R. SUTTON. 1940. *Preliminary annotated list of birds, Riding Mountain National Park, Manitoba*. Natl. Mus. Can. Mimeographed Manuscript.

CLARKE'S NUTCRACKER AT SASKATOON

by STAN SHADICK*

On November 18, 1972, Mr. Ben Simpkins who owns a farm at Beaver Creek, 8 miles south of Saskatoon, reported to us that there was a strange bird in his yard. He had looked it up in a birdbook and decided that it must be a Clarke's Nutcracker. Realizing this to be far from its normal range, John Shadick, Ron Bobowski and I went to have a look at it in the afternoon. Upon arrival, we saw the bird in a shelter belt some 10 yards from the farmhouse. The long pointed bill, white patches on otherwise black wings and tail, as well as the jay size enabled us to confirm the identification as a Clarke's Nutcracker, a species which my dad and I have seen several times in the Rockies. The bird was generally darker than that shown in pictures of adult birds, indicating it to be an immature.

While we watched, the bird appeared quite tame and allowed us to approach to within 15 feet. During this time it was feeding on a recently slaughtered pig's head as well as some sausage meat which had been set out for it.

Before leaving I reported the sighting to the local "Rare Bird Alert" and

several observers from Saskatoon were able to come out and view this rarity. Dr. Stuart Houston brought out a trap to band the bird but was unsuccessful. The nutcracker was able to steal the bait without getting caught. Alan Mouli reported that he had no trouble in approaching within 8 feet of the bird. The bird was last seen by the Simpkin family on November 23.

According to Salt and Wilk, the Clarke's Nutcracker is restricted to the sub-alpine coniferous forests of the mountains in summer, but descends to lower altitudes in late fall and winter. On these occasions it has been seen frequenting settlements and farmyards.

There have been several records of this species at great distances from its breeding range. In Alberta, it has been seen at Porcupine Hills, Beaver Lodge and Belvedere.¹ In Saskatchewan, it has been seen on several occasions in the Cypress Hills region as well as at Moos Jaw on March 24, 1968.²⁻⁴ There are in addition at least two records for Manitoba.¹ However, this sighting at Saskatoon represents a significant range extension of this straggler for Saskatchewan.

¹GODFREY, W. E. 1966. *The Birds of Canada*. Nat. Mus. of Can. Bull. No. 203, Ottawa.

²GREEN, D. S. 1969. *Clarke's Nutcracker at Moos Jaw*. Blue Jay 27: 36.

³SALT, W. R., and A. L. WILK. 1966. *The Birds of Alberta*. Dept. of Industry and Development, Edmonton.

⁴SEALY, S. G. 1971. *The occurrences of some western birds in Saskatchewan*. Blue Jay 29: 18-196.

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FLAMINGO

PHOTOGRAPHED IN THE WILD IN SASKATCHEWAN

by R. KENT BRACE*

While conducting an aerial waterfowl census on Lenore Lake, Saskatchewan (Lat. N. 52°24'; Long. W. 105°00') on October 3, 1972, Mr. John Rogers, Athabasca Airways, and the author sighted and photographed a Flamingo. The Flamingo was with a flock of Canada Geese that left the northeast shore and flew towards the centre of Lenore Lake as the aircraft proceeded northward along the east side of the lake. Initially, the bird was thought to be a dyed Whistling Swan or Snow Goose; however, as the aircraft flew above the bird, its long, trailing legs, uniform bright pink colouration, large bulbous head, black recurved bill, and black-tipped primary and secondary feathers became apparent.

When we finished the waterfowl census, the Flamingo was relocated on a mudflat at the northeast end of the lake where it had been first sighted approximately one hour earlier. The bird flew towards the centre of the lake when the aircraft approached it on the second occasion, and was photographed. The observations were made between 2:00 and 3:30 p.m.

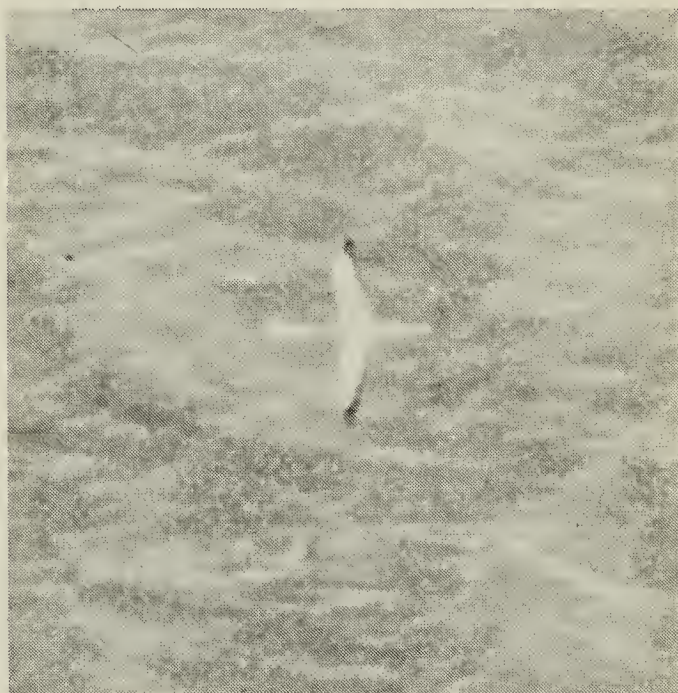
Mr. M. K. Baker, Director of the Saskatchewan Museum of Natural History, Regina, has indicated that the Lenore Lake observation was the first authenticated Flamingo sighting for Saskatchewan. Other sightings have been reported, however, and Miss Christina Pike, Waseca, Saskatchewan, has forwarded the following:

"Helena Pike (nee Janus) spent her childhood and girlhood in the Battle River Hills south of Waseca. She puts her sighting at 1940, when a flamingo spent several days on a slough near the house.

My oldest brother (Ronald Pike) and my late father sighted three on our home

quarter (SE-9-49-24) about 1937. They stalked them and had ample time to view them, as did Helena".

In the wild, Flamingos are bright pink in colour; however, in captivity their plumage generally fades.¹ Since the Lenore Lake sighting was the first authenticated record in Saskatchewan, and the Flamingo was bright in colour, an effort was made to determine whether the bird had escaped from a zoo or had strayed from the normal range. The current breeding distribution and area of post breeding dispersal is the southern tip of Florida, the West Indies, the east coast of Mexico and the northeast coast of South America. Records for elsewhere in Florida, Louisiana and Texas are suspected of being escapees.¹



Dr. J. B. Gollop, Canadian Wildlife Service, Saskatoon, wrote 22 zoos in western Canada and the northern United States west of the Mississippi River and learned that two bright pink Flamingos had escaped from the Roosevelt Park Zoo, Minot, North Dakota, on September 25, 1972. One of the Minot escapees was sighted at Lake Darling, 30 miles northwest of Minot on September 27. It was concluded that the Flamingo observed at Lenore Lake was one of the two that escaped from the Roosevelt Park Zoo.

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¹PALMER, R. S. 1962. *Handbook of North American Birds*. Yale University Press, New Haven. 567 p.

A NESTLINE DRAMA

by JOHN LANE*

On June 12, 1972, I was banding bluebirds east of Camp Hughes, Manitoba, on the Canadian Pacific Railway. When I arrived at Nestbox No. 783, known to house a brood of Mountain Bluebirds, a storm of frenzied food-calls met me as I removed the top to band the fledglings; it was obvious that these young were close to starving, which raised the question as to the whereabouts of the parents. Experience had taught me that frantically hungry baby bluebirds could mean both adult providers had perished, in which case it would be up to me to find alternative board and room for the foundlings; or in an extremity take them home and hand raise them. Having banded all seven, I found only five bands remained on the string, so I continued east till I finished up.

In an elapsed time of just over one half hour I was back to No. 783. I was climbing out of the car to investigate this nestbox once more, when a pair of Eastern Bluebirds flew into view, the female carrying a large beakfull of building material and the male in close attendance. The mother bird went directly to the nesthole, peered in, then went in and remained there for a full minute. Her entrance evoked another storm of frantic cries from the seven young, but she paid them no heed, and it was at once clear that this was no shy little Eastern female, furtively carrying nesting material to a chosen site, "in secret and apart"; rather this was a harried creature intent on preparing a new nest for her imminent clutch of eggs at the earliest possible moment. Without doubt this pair had been evicted from their previous home just as the eggs were due to be laid.

In any case, extreme urgency was evident in their every action; the female would hurtle from the nestbox, drop down to the ditch, seize whatever was handy in the way of grass and hasten

back to the nest. The male too was seized with the need for haste, and I saw him carry material and dump it through the nesthole, where it cascaded down to the starving babies. The fact that I stood within 10 feet of the nestbox, in full view of the working birds for some minutes, did not divert the pair for a moment: time was of the extreme essence and they had none of it for mere man.

By now it was certain that the Mountain parents were out of the picture, and the seven young were without support so I removed them from their nest. They were a bedraggled lot, covered with building debris and some with bits of grass protruding from their mouths. Frantic with hunger, they had tried to ingest whatever came to hand. I left three of these babies in Nestbox No. 83 nearby, where a pair of Mountains were raising three young; the other four went home with me, where we quickly fed and comforted them. The following day we left these with another Mountain couple on the Hooke Ranch line; they had four of their own. Both at this nest and at Nestbox No. 85, the original young were of a similar age to the orphans.

Relieved of the nuisance of trying to build a nest on top of seven squirming foreigners, the Eastern female quickly got the job done. On June 14, two days after their arrival, I visited this nest again late in the day and found it already held two eggs — confirming the need for haste in getting the nest built. One important question remains with me: how did this Eastern pair know that there were no Mountain parents to dispute their takeover of this nestbox? It may be that they had been present for some time, quietly watching and listening for any sign of the original owners, before they made their move to take over.

JACK LANE

In Reader's Digest

"The Man Who Brought The Bluebirds Back" is the title of an interesting six-page story about Jack Lane in the September, 1973, issue of *Reader's Digest*.

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Sharp-tailed Grouse in dancing ground

SHARP-TAILED GROUSE AND PRAIRIE CHICKENS

A portfolio by ED BRY

Prairie Chicken on dancing ground





Sharp-tailed Grouse

The Sharp-tailed Grouse is a common bird in the Prairie Provinces. The Greater Prairie Chicken, once fairly common, is now rarely seen. Note differences between the two in these photographs, particularly the tails and the markings on the underparts. The Sharp-tail is well named, having

long tail feathers that come to a point and are largely white. In contrast, the Prairie Chicken has a short, wide, dark brown tail. Anyone seeing or accidentally shooting a Prairie Chicken should report it to the nearest game official or provincial museum.

Prairie Chicken





Sharp-tailed Grouse

Prairie Chickadee



POLAR BEARS

At Cape Churchill, Manitoba

by GEORGE HOCHBAUM*

While banding Canada Geese for the Manitoba Government on Cape Churchill, I had the opportunity to make daily observations of polar bears from July 16 through July 28, 1968. Our base camp was about 45 miles east of the townsite of Churchill, half a mile inland from the west shore of Hudson Bay and some 25 miles north of tree line. The area is characterized by many gravel beachlines parallel to the coast and separated by lowlands holding many small, shallow lakes bordered with willows.

Polar bears were seen every day, usually in the early morning or late afternoon and early evening. Bears were seldom observed to venture far from shore and most sightings were made from a small point which jutted out into the Bay. Clearly, bears related their feeding activities to the tide, moving away from shore before 10 a.m. to search the tide flats for food. They returned to the shoreline with the incoming flow between 4 and 7 p.m.

On the point from which I made most of my observations, and elsewhere along the coastline, I found shallow beds or pits which had been dug by bears. These averaged about 4 feet in diameter, dug in at a slight angle to level ground. Several times in late afternoon I saw bears in these pits, either sitting or lying with their hind-quarters within the pit, invariably the bears faced down-wind. On one occasion I chanced upon a bear in a pit, casually eating willow roots. Twice I saw bears leave scent at their beds,

urinating on nearby pieces of drift-wood. Each of these bears was observed to lift its leg, much in the manner of a domestic dog.

I never saw more than one bear in the vicinity of our camp at any one time, but I suspect from differences in their size and appearance that from three to five were using the area, renowned as a summer gathering place for polar bears. I also suspect that these were adult males or immatures which had not reached breeding age.

This local gathering of bears may have been influenced by the presence of a dead beluga whale which had drifted ashore near the point. On several evenings I saw single bears come to feed on the whale. The longest feeding period was 30 minutes by a bear which during this period rolled on the decomposing whale several times.

The polar bears on Cape Churchill were not as easily approached as are the bears at the Churchill garbage dump during their fall concentration there. When bears noticed my presence, they quickly retreated to the Bay.

Editor's Note: Anyone interested in more information on polar bears is urged to write for a copy of the beautifully illustrated, 16-page brochure entitled *The Great White Bears* by R. W. Nero. It is available free from the Department of Mines, Resources and Environmental Management, Winnipeg, Manitoba.

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THE FOLLY OF THE BEAVER

by HAROLD E. HOBDEN*

Beavers, too, can err in judgement. So it would appear from some unique beaver-work, the like of which I have never seen in all my years spent in the woods.

I own a couple of miles of canyon on the Little Clear River, what I call my private game sanctuary. This is north of the Peace River and just within Alberta, east of Fort St. John, B.C. The beavers multiply and migrate from there. I find they make the best of company — and no finer relaxation can I wish for than watching them in late evening or on a rainy day when work can be put off, allowing time for a hike.

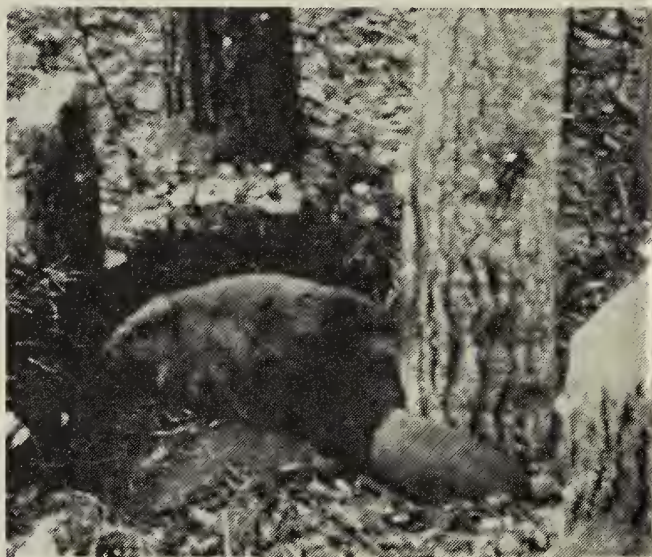
To my surprise, the beavers started a damming and falling project in a most unfavourable location — 5 miles from the nearest stream. The timber supply was exceptionally heavy — mostly white poplars 60 to 70 feet in height with diameters of 12 to 24 inches. These were felled to a depth of 5 feet in places. The beaver dam, if completed, would have to be at least 80 rods (1,320 feet) long. It could have retained water to a depth of 6 feet, *if there had been any*, and backed it up for a half a mile. No water was dammed up and I could see no sign of their constructing a lodge.



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I decided this was worth a few snapshots, but could not include all the stumps in one picture. So I hired a man with a power-saw to cut a heater-bloc length off of each stump and I packed these to the gravel road. Then I hauled them to my house on the big trail shown here. When people ask what the objects are, I tell them "Peace River cabbages."

I suspect that this fall some road-side hunters saw where the beavers had dragged the tips of some of the fallen trees to the gravel road; their attention thus drawn to the beavers' activities they killed them off.



Another picture demonstrates that beavers, too, have fallers accidents; the tree slipped off the stump gnawed by the beaver. The lower end of the tree pinned the beaver's hind leg to the earth, while the tree remained upright, lodged against its neighbors.

MAN PLAYS WITH THE QU'APPELLE WILDLIFE DIES

by KEN L. EARL*

A trapper who is not a conservationist does not remain a trapper very long. As a part-time trapper, I am very interested in all aspects of wildlife and conservation here in the Qu'Appelle Valley. I believe that with some forethought, man could have a agricultural and recreational areas in partnership with nature, but to date

am greatly concerned with the evident disregard for wildlife and its habitat.

As recently as 25 years ago, the Qu'Appelle River was clear enough to see the bottom — and to swim in. The banks had little erosion and seedlings grew in profusion along the river bank. In the mid-1950's, a family born and raised on the river bank began to notice the first effects of water fluctuations and flushing resulting from man-made dams. At times, there was not enough water in the Qu'Appelle to supply irrigation water — yet, suddenly, 3 weeks later, great amounts of water were let loose down the river. The effect on the aquatic mammals and plant life has been devastating. Such rises in level may also flood eggs and kill nestlings of ground-nesting birds near the river.

The government engineers appear to be totally ignorant of beavers and muskrats in particular. In the Qu'Appelle Valley, these animals tunnel into the bank. In late September and October, there is feverish activity by both species to gather the winter's store of food. Muskrats will be seen swimming with mouthfuls of grasses and then disappear — to stockpile them in the bank. Beavers construct what is known as a feedpile, usually within 10 to 20 feet of their main bank burrow. After the ice forms, these food caches are the only supplies available to both species.

Winter, then, is the worst possible time for sudden changes in water level. Beaver and muskrat residence burrows may be flooded and their food supplies washed down stream. I have seen water levels rise by 3 to 5 feet in as many days with a flush of water released from the Aiktow Dam. The hydrostatic pressure lifts the thick ice and any feedpiles frozen in it are washed away. Sometimes the food is carried beyond the reach of the beavers and they are condemned to starvation under the ice. A classic example of this occurred near the Kenell Anglican Church, 4 miles east of Craven, in late February, 1973.

When a sudden flushing of water of this type occurred in November, 1972.

I angrily phoned the Saskatchewan Department of the Environment. A member of their Commission accused me of being selfishly interested in possible loss of my traps rather than in the environment — and I was told that tampering with water levels was only on an experimental basis for the last 3 years. However, it has been going on much longer than that.

Beavers build dams on the Qu'Appelle when this is necessary to maintain a reasonable supply of water. Two years ago, government engineers blasted the beaver dams all the way from Craven to the Piapot Indian reserve, a distance of about 13 miles. This was supposedly to clear the channel but, again, indicates a lack of understanding of nature. I know of no case where a beaver dam flooded land between Craven and Highway No. 6 — and the construction of some of these dams was simply the animals' response to the engineers' manipulations: dams are made necessary because bank tunnels were no longer secure. If the engineers do not understand nature, they should ask for help from biologists, rather than compounding their own errors.

Finally, the quality of water coming down Wascana Creek from Regina is so rank with inadequately treated sewage and so high in phosphates and other nutrients that the death of aquatic plants and seedlings is evident as soon as the water recedes. The whole matter of environment quality in the Qu'Appelle Valley deserves immediate attention. Even rapid implementation of the survey recommendations would be another case of "too little and too late."

* Lumsden, Saskatchewan.

Some New and Interesting

PLANT RECORDS

For the Prairie Province

by J. LOOMAN*

Introduction

In the 3 years since I reported range extensions of several species in Manitoba, further new or interesting records have been collected.¹⁰ Specimens of the species mentioned are all in the herbarium of the Research Station, Swift Current, Saskatchewan under the collection numbers quoted.

Data and Discussion

Beech Fern (*Thelypteris phegopteris* (L.) Slosson). McLennan Lake, Saskatchewan, at about 55° 53' N 104° 22' W, Looman 16533. Along small stream in shaded coniferous forest; fairly plentiful.

Boivin gives the distribution of this species as ranging from Nova Scotia to British Columbia, but remarks: "With only one known collection per province, we admit to being puzzled by this high degree of sporadism."³ Scoggan mentions a single collection (at about 57° N, 102° W) for Manitoba¹³; Moss does not list the species for Alberta¹²; Fraser and Russell have the species as occurring in the coniferous forest zone⁷, and Breitung gives records at Lake Athabasca, Clut Lake (north of Fond du Lac), and Porter Lake (which may be in the Northwest Territories, rather than Saskatchewan).⁵

The present collection is not only that of a rare species, but also well south of the known collections.

Smooth Crabgrass (*Digitaria*

ischaemum (Schreb.) Muhl.), Moose Lake, Manitoba, 49° 12' N 95° 20' W, Looman 14998. In disturbed area along roadside, with Witch Grass (*Panicum capillare* L.).

Previously reported only from Winnipeg.¹³ This species has glabrous sheaths and leaves, and its inflorescence has usually three racemes while in *D. sanguinalis* (L.) Scop. the sheaths and leaves are pubescent, and the inflorescence usually has five or more racemes.

Smooth Grabgrass is a rather common and troublesome weed in Eastern Canada but is very rare in the West. At Moose Lake it was plentiful along the side of a now apparently little used road to a former logging camp.

Pine Grass (*Calamagrostis rubescens* Buckl.) Nipawin Provincial Park, Grace Lake, Saskatchewan, at about 54° 01' N 104° 32' W, Looman 16633. Along trail in moderately dense coniferous forest.

This species was known in Saskatchewan only from the Cypress Hills Provincial Park.^{4 6 7 14} Boivin gives the distribution as southwest Saskatchewan to British Columbia.² Moss lists the species only for Western Alberta, and de Vries and Bird do not include it in their list of "Cordillera species."^{12 15} However, Tisdale and Budd mention that the species was collected in the Albertan Cypress Hills by Bolton, and a specimen labelled "Cypress Hills, Alta." collected by Bolton in 1936 is in the herbarium at the Research Station, Swift Current. Breitung also lists a specimen from the Albertan Cypress Hills.⁴ The present location is far north and east of the hitherto known distribution and it

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possible that further locations in the Boreal forest will be found. Several of the Cordilleran species, listed by Breitung and de Vries and Bird show this type of distribution, for example, Pipsissewa (*Chimaphila umbellata* var. *occidentalis*), Pinesap (*Monotropa hypopithys*), and Pinedrops (*Pterospora andromedea*).^{4 15}

Muhly (*Muhlenbergia andina* (Nutt.) Hitchc), Birch River Community Pasture, Manitoba, at about 52° 30' N 101° 01' W, Looman 15334. Wet area in shallow depression. Duck Mountain Provincial Park, Laurie Lake, Manitoba, 51° 33' N 101° 03' W, Looman 15415. On moist rocky beach. Uncommon in the Birch River Community Pasture, but very abundant on the shore of Laurie Lake. New to Canada.

This species has not previously been reported east of the Rocky Mountains. Abrams gives its distribution as "open ground, Arid Transition zone. Cascade and Sierra Nevada Mountains from Washington to California, east to Wyoming."¹ Hitchcock includes Montana, at medium altitudes, in the distribution area.⁹ Its occurrence some 2° or 3° north, and possibly 14° east of the hither-to known range is rather puzzling. Though it is not impossible that this species has been overlooked in the intervening area, I doubt whether this alone can account for the apparent discontinuity in the distribution of *M. andina*. Superficially, confusion with Bog Muhly (*M. comerata*) and Marsh Muhly (*M. cemosata*) is possible, and both these species are widely distributed in the Prairie Provinces. It is therefore not entirely impossible, though rather unlikely, that some misidentified specimens of *M. andina* are in herbaria. Examination under moderate (10x or more) magnification will bring such specimens to light. Also, while Bog Muhly is a plant of oligotrophic marshes, and Marsh Muhly occurs mainly in forest margins and shrubbery on rather dry soils, *M. andina* occurs on somewhat saline, wet soil in both locations in Manitoba.

Stemless Lady's-slipper, (*Cypripedium acaule* Ait.), Moose Lake,

Manitoba, Looman 14977; McKay Lake, Saskatchewan, 55° 27' N 104° 56' W, Looman 16623; Lac Ile a-la-Crosse, Saskatchewan, 55° 25' M 104° 56' W, Looman 16953. Shady and open coniferous forests on sandy soil (Fig. 1).



Fig. 1. Stemless Lady's-slipper
(*Cypripedium acaule* Ait.)

In Manitoba this species is reported only from the Whiteshell Forest Reserve, Victoria Beach and Herb Lake Village.¹³ Fraser and Russell report it (as *Fissipes acaulis*) from forests in the Grey Podsol soils and Precambrian shield zone.⁷ Breitung lists Lac la Ronge and Lake Athabasca as the only locations in Saskatchewan.⁵

Moss gives northeastern Alberta, but does not indicate the abundance of the species.¹² Stemless Lady's Slipper has also been sent in to me for identification from "north of Green Lake."

Maiden Pink. (*Dianthus deltoides* L.). Cold Lake, Saskatchewan, 54° 33' N 109° 52' W, Looman 17686. Disturbed area in open pine-spruce forest on sandy soil (Fig. 2).



Fig. 2. Maiden Pink (*Dianthus deltoides* L.)

Hitherto known in Canada from Nova Scotia to Ontario and British Columbia.² The only other *Dianthus* species in the Prairie Provinces are Wood-pink (*D. sylvestris* Wulfen), with a glabrous calyx (pubescent and somewhat glandular in Maiden Pink), and Sweet William (*D. barbatus* L.) which has a congested inflorescence.

The genus *Dianthus* is apparently not native to North America, and the occurrence of Maiden Pink in this isolated location forms another puzzle. There is a cabin about three-quarters of a mile north of the location and across the Cold River. But this

cabin belongs to a trapper who uses only in winter and there is no garden. Topographic maps of the area indicate a ranger's cabin approximately at the location, but this cabin was never there according to forest rangers whom I asked for information. At present, two picnic tables and a toilet are in the general area but old-timers in nearby Pierceland assured me that no one has ever lived permanently in the area or maintained a garden there.

Swamp Saxifrage (*Saxifraga pensylvanica* L. ssp. *pensylvanica*). Moos Lake area, Manitoba, Looman 1486. Very sparse in muskeg area (Fig. 3).



Fig. 3. Swamp Saxifrage (*Saxifraga pensylvanica* L.)

The species is new to Manitoba and was previously known in Canada only from the Rainy River area in Ontario. It was collected there by Ward, 1911, and Garton, 1961, as shown on herbarium labels. In a personal communication confirming identification of this species, Dr. Boivin notes that the species is cited by Macoun.

collected by Day in low places near Fort Erie but that he has been unable to find the Day specimens anywhere." Hence, he considers the report unsubstantiated and notes further that Gleason includes Ontario in the range of the species on the basis of Macoun's report.⁸ The first authentic report for Canada is that of Boivin which is based on the Rainy River collections.² The present location in Manitoba is about 5 miles across Lake of the Woods from the Ontario locations.

Northern Wild Comfrey. (*Cynoglossum boreale* Fern). Moose Lake, Manitoba, Looman 14800. In moist woods around the lake.

Previously known only from four other locations in Manitoba.¹³ This is another "rare" species. Dr. Boivin, in personal communication, remarks "A very rare plant. Can you guess at the reason for its rarity?"

It is possible to make a guess at rarity but it will be much harder to prove this guess correct or incorrect. In my opinion, native plants can be rare for three main reasons: Firstly, because of their limited tolerance to habitat conditions, which makes suitable habitat types scarce. In this case, a species may be found in only a few locations but may be quite plentiful there. Secondly, because of very special adaptations, such as those of the orchids which require a symbiont. This case is very similar to the first one, but the species can occur in other varied habitat types, as long as the symbiont is present. Thirdly, the reproductive capacity of the species may be limited so that it cannot become abundant.

It is possible that a species has two, even all three of the above characteristics and is very rare indeed. Thus, Northern Wild Comfrey may well be limited to the moist, shady coniferous woods on sandy soils, as those at Moose Lake. It also appears to set a few seeds, so that its reproductive capacity is limited. Given these conditions, the species must be and must remain rare in general as well as its occurrence.

¹ABRAMS, L. 1940. *Illustrated flora of the Pacific states*. Stanford Univ. Press, Stanford, California. 1 vol.

²BOIVIN, B. 1967a. *Enumeration des plantes du Canada*. Provancheria 6, Herbar Louis-Marie, Université Laval.

³BOIVIN, B. 1967b. *Flora of the prairie provinces*. Part I. Provancheria 2, Herbar Louis-Marie, Université Laval.

⁴BREITUNG, A. J. 1954. *A botanical survey of the Cypress Hills*. Can. Field-Naturalist 68: 55-92.

⁵BREITUNG, A. J. 1957. *Annotated catalogue of the vascular flora of Saskatchewan*. Amer. Midl. Naturalist 58: 1-72.

⁶BUDD, A. C. and K. F. BEST. 1964. *Wild plants of the Canadian prairies*. Can. Dep. Agr. Pub. 983.

⁷FRASER, W. P. and R. C. RUSSELL. 1954. *An annotated list of the plants of Saskatchewan*. Univ. of Saskatchewan, Saskatoon, Saskatchewan.

⁸GLEASON, H. A. 1952. *The new Britton and Brown illustrated flora of the northeastern United States and adjacent Canada*. Vol. 2. New York Botanical Gardens.

⁹HITCHCOCK, A. S. 1950. *Manual of the grasses of the United States*. U.S. Dep. Agr. Misc. Pub. 200. Washington, D.C.

¹⁰LOOMAN, J. 1969. *Distribution extensions of Manitoba plant species*. Can. Field-Naturalist. Vol. 83(4).

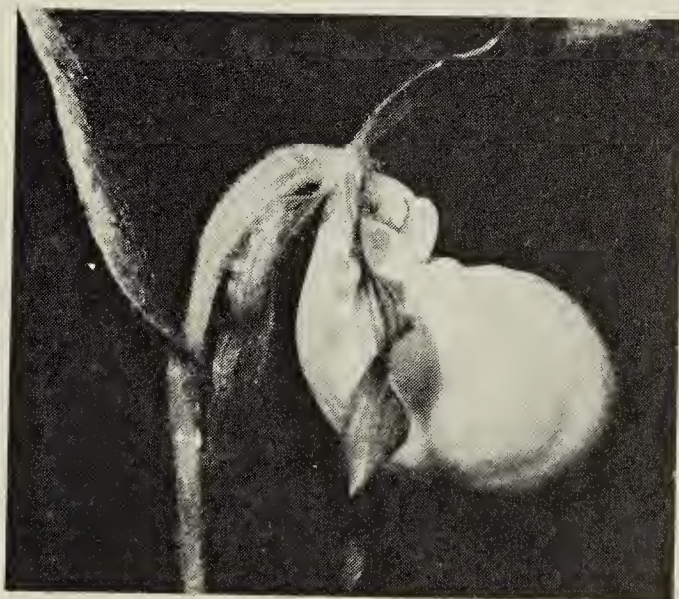
¹¹MACOUN, J. 1886. *Catalogue of Canadian plants*. Part III — Apetalae. Dawson Brothers. Montreal.

¹²MOSS, E. H. 1959. *Flora of Alberta*. Univ. of Toronto Press.

¹³SCOGGAN, H. J. 1957. *Flora of Manitoba*. Bull. 140. Nat. Mus. of Can., Ottawa.

¹⁴TISDALE, E. W. and A. C. BUDD. 1948. *Range extensions for three grasses in western Canada*. Can. Field-Naturalist 62: 173-175.

¹⁵VRIES, B. DE, and C. D. BIRD. 1968. *Additions to the vascular flora of the Cypress Hills, Alberta*. Blue Jay 26: 98-100.



Yellow Lady's-Slipper

R. E. Gehlert

RAM'S-HEAD LADY'S-SLIPPER

Rediscovered In Saskatchewan

by WILLIAM J. CODY*

W. P. Fraser and R. C. Russell listed the Ram's-head Lady's-slipper (*Cypripedium arietinum* R. Br. (sub *Criosanthes arietina* (R. Br.) House) simply as "(Sask.)".⁴ This would indicate that they knew of an earlier literature record, but that they had not seen a specimen nor had any knowledge of where the plant might be found in the province.

The Saskatchewan literature record was undoubtedly the range given in Rydberg's Flora, which in turn was undoubtedly based on the report by W. J. Hooker "Portage of the Grand Rapid of the Saskatchewan. Drummond".⁷ "Drummond's specimen is likely preserved in the Herbarium at Kew in London, England. It was, however, according to Scoggan, not collected in Saskatchewan, but along the Saskatchewan River near the northwest end of Lake Winnipeg, in what is now Manitoba, and was reported by him as being the first collection from that province."⁸ Other examples of species erroneously reported for Saskatchewan on the basis of ambiguous data given by early collectors, such as John Richardson, Thomas Drummond and Eugene Bourgeau, are listed by A. J. Breitung in his discussion under "Excluded Species".¹

The first authentic report for Saskatchewan was by Fraser and Russell.⁵ This report was based on an undated specimen collected by O. C. Furniss, merely labelled Prince Albert. This specimen which is preserved in the W. P. Fraser Herbarium at the University of Saskatchewan was presumably

gathered between 1937 and 1944. The report apparently went unnoticed by Fernald, Correll or Scoggan, who gave the range . . . "west of Manitoba".^{3 2 8}

It was thus most interesting when I received a colour photograph of the rare plant for identification from Mr. Don MacPhedrau of Prince Albert. The picture was taken in May of 1944 a few miles northwest of Prince Albert where the plants had been discovered by Mr. and Mrs. Andy Rosent. The occurrence in Saskatchewan of the Ram's-head Lady's-slipper is thus corroborated.

There are three other species of Lady's-slipper which are known to occur in Saskatchewan. These are the Yellow Lady's-slipper (*Cypripedium calceolus* L. var. *parviflorum* (Salisb. Fern.), the Northern Lady's-slipper (*passerinum* Richards.) and the Stemless Lady's-slipper (*C. acaule* Ait). All of these species have a slipper-like lip and two of the sepals partly to entirely united under the lip, thus making five perianth parts. The Ram's-head Lady's-slipper may be recognized by the entirely free deep purplish-brown sepals and the sac-like lip which is much inflated at the base and prolonged downward into a blunt conical white or pinkish-white pouch which is strongly netted with crimson or madder-purple. The presence of distinct perianth parts rather than as described above, was the character used by some authors to distinguish the segregate genus *Criosanthes*. The specific name *arietinum* means "ram-like" and, as pointed out by Correll, is an allusion to the slope, position and general appearance of the lip, in relation to the other floral parts, which simulates the head of a charging ram.

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FRASER, W. P. and R. C. RUSSELL. 1937. *List of the flowering plants, ferns and fern allies of Saskatchewan*. University of Saskatchewan, Saskatoon, Sask.

⁵FRASER, W. P. and R. C. RUSSELL. 1944. *Revised, annotated list of the plants of Saskatchewan*. University of Saskatchewan, Saskatoon, Sask.

⁶HOOKER, W. J. 1839. *Flora Boreali-Americana*. London.

⁷RYDBERG, P. A. 1932. *Flora of the prairies and plains of central North America*. New York Botanical Garden, New York.

⁸SCOGGAN, H. 1957. *Flora of Manitoba*. Nat. Mus. Can. Bull. 140.



am's-head Lady's-slipper

Don MacPhedran

To Find

ALBERTA'S PRICKLY ROSE

by ROGER H. VICK*

"Is this THE wild rose of Alberta?"

A visitor to our Province, touring the Botanic Garden last season, wanted to make quite certain that he was looking at the 'genuine article'. He was not.

A flowering plant of our official Floral Emblem was quickly brought to his notice, and a few details pointed out that always serve to separate it from the less honoured species. Within a few minutes he was confidently pointing out the plants of Prickly Rose that were mixed with the other common wild rose of this region.

I would estimate that this visitor's new found ability to identify our Provincial flower is shared by less than 15% of resident Albertans! If you would like to join this select minority read on, for there is nothing mysterious nor difficult in the exercise.

The 'Wild Rose' was chosen by the school children of Alberta about 1929 to be the floral emblem of this Province, and while we have THREE native species of wild rose, it was the one with the widest distribution within our boundaries that was officially selected, *Rosa acicularis*, the Prickly Rose.

The three can hardly be identified with confidence by their flowers which are pink in each case (with occasional plants that produce white or almost red blooms). To find our floral emblem we must look beyond leaves and flowers, and find the first clue to identity in the location of the plant. (See the range maps attached).

The natural distribution of our Prickly Rose extends to all but the grassland south-east corner of the Province. As we move north to the less arid central and north-eastern areas of Alberta, we enter a region where our Alberta Rose is very much at home and where it does not commonly associate with its two kindred species. Point to any wild rose growing in the area and it is most likely to be our floral emblem.

But what about all those 'difficult' regions where two, or all three species could be found growing side by side? This is where a closer look at the plant is called for, so let us look at each of the three species in turn.

The **Prairie Rose** (*Rosa arkansana*) is the species less likely to be confused with our own. It loves those dry hillsides and exposed plains where lack of winter snow protection causes it to die back every year almost to the ground. The secret of its persistence under such adversity lies in its ability to sprout quickly from the roots and produce clusters of flowers and fruit on the new wood. Comparative dwarf, it only reaches a height of from 8 to 16 inches.

The two other species are taller, (4 feet or more), and flower on shoots that appear from older wood.

The **Common Wild Rose** (*Rosa woodsii*) is so similar to the Prickly Rose that the flowers of this one doubt have been photographed on many occasions, and sometimes been published as our floral emblem. The imposter is not to be blamed, for a glance at the growing shoots quite sparsely set with prickles reveals true identity to all who would read the signs.

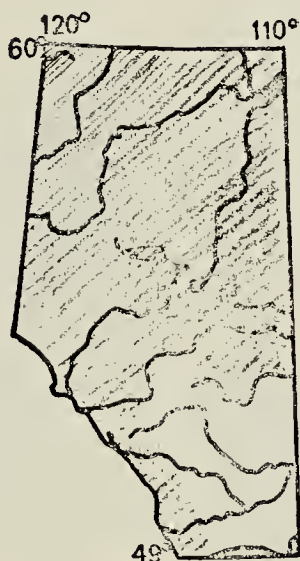
* Botanic Garden and Field Laboratory
Department of Botany,
The University of Alberta,
Edmonton 7, Alberta.

The **Prickly Rose** (*Rosa acicularis*) provides the clue to its correct identity in the specific name *acicularis*, which means 'needle-like', and refers to the thorns or spines that are densely set right up to the very tips of the new growing shoots. Unlike the other roses, the fruit of this species are often more elongated or pear-shaped, and become soft and pulpy by late summer when the round fruit of the Common Wild Rose is still very firm and dry. These succulent Prickly Rose hips, dried and ground, are probably the most satisfactory of our native species

in the preparation of rose-hip tea (but use hot rather than boiling water, to preserve the vitamin C).

Like the pioneers who first settled this land, the Rose of Alberta will 'arrive' just a little ahead of its kin-folk. So be prepared when the dainty pink flowers smile at you from woodland borders and grassy slopes next June, and their scent begins to fill the evening air, to announce with pride and conviction to all those who would hear: "THIS is our ALBERTA Rose."

Shaded areas show where Alberta's wild roses are commonly found under natural conditions.



PRICKLY ROSE
Alberta's floral emblem



COMMON WILD ROSE



PRAIRIE ROSE

MACOUN'S ARCTIC

In Central Manitoba

by WALTER V. KRIVDA*

Recently in sorting and arranging the Satyrid butterflies in my collection a considerable range extension northward in Manitoba for Macoun's Arctic (*Oeneis macouni* Edwards) was located.

This is based on two specimens. The first was taken in The Pas on June 19, 1947. This was collected by Edward Melnyk 1/2 mile west of the Roman Catholic Cemetery along the Saskatchewan River. Today, this is approximately the site of the Lutheran Church. The specimen is somewhat torn and lacks the abdomen. It was identified by J. B. Wallis in 1948 and is a female. The area is low and is about a mile from any jack pine. The Red-disked Alpine (*Erebia discoidalis*) and the Ringlet (*Coenonympha inornata*) fly in this same area.



Macoun's Arctic**

Another specimen from The Pas is also on hand. It was netted on June 13, 1953, near Grace Lake in a stand of jack pine bordering sphagnum bogs. No other specimens have been seen in this area in over 20 years of collecting.

The following additional Manitoba specimens are in the writer's collection:

Sandilands, June 6, 1952: 1 female, males, coll: C. S. Quelch.

Sandilands, June 17, 1956: 7 females, males, coll: John Polusny.

Agassiz, June 25, 1968: 3 females, male, coll: ?

Brokenhead, July 4, 1954: 1 male, coll: Dan Mosquin.

Riding Mountain National Park, June 2, 1963: 4 females, 4 males, coll: W. Krivda and July 3, 1963: 2 females, 1 male, coll: W. Krivda.

It has been known for some years that different colonies produce adults in alternate years. Some produce adults in odd years; others in even years. It takes approximately 2 years for the adult to develop from the egg.

It has, therefore, proved of particular interest to discover that in Manitoba both kinds of colonies exist. This, in effect, allows two independent lines of evolutionary development to take place in relatively flat country that there could be no inbreeding between the odd and even year forms.

Too little collecting has been done in Manitoba and too little material is available for study or for drawing satisfactory conclusions. From the present few records available it would seem that the form that flies in even years occurs in eastern Manitoba and that the form flying in odd years is established in central Manitoba (Riding Mountain Natl. Park) and ranges some 300 miles northward to The Pas, on the edge of the Hudsonian Life Zone or Transition Forest. More extensive collecting will likely locate additional colonies in the intervening area. New evidence, just come to hand, establishes that Macoun's Arctic occurs some 35 to 40 miles north of The Pas on the Flin Flon Highway. This is over Devonian limestone at Roc

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The Pas, Manitoba.



Red-disked Alpine**

Lake. It may reach Flin Flon or just all short of this area as the Pre-Cambrian Shield outcrops here with a corresponding change in soils and grass species. A local grass or sedge is the likely food plant of the caterpillar of this fine butterfly.



Ringlet**

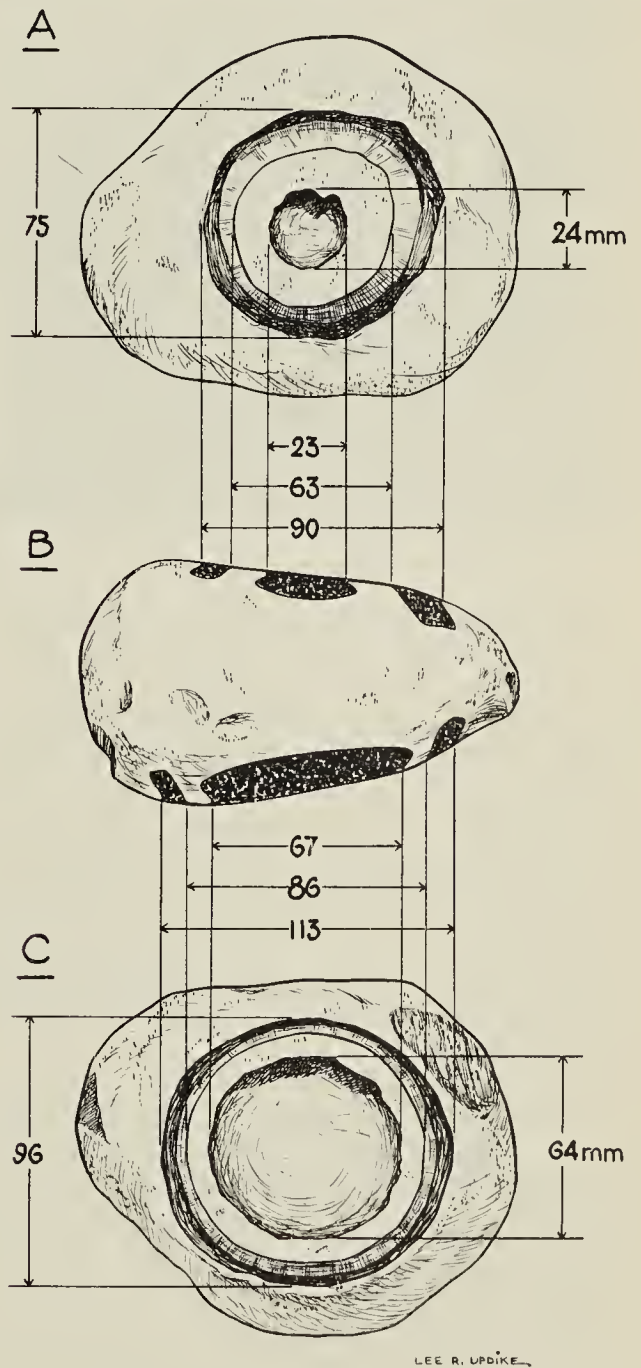
From the early and restricted collections in Manitoba, one would suspect that Macoun's Arctic is a scarce Manitoban butterfly. It may be more frequent than is at present suspected. Its short flight period may contribute to this conclusion; its occurrence in alternate years only in each area would tend to reduce data on the species as well as specimens in collections. More research is needed.

* Illustrations from *Butterflies of Saskatchewan*, by Ronald R. Hooper. Saskatchewan Department of Natural Resources, Regina, Sask. 1973.

CONCRETION FOUND AT TISDALE, SASKATCHEWAN

by STAN D. RIOME*

The experience of a disc striking a stone while working newly broken land was not unusual for Mr. Howard G. Wenham on his farm 7 miles north and 3 miles west of Tisdale in 1955. One particularly spine shattering lurch made him think some unkind thoughts, so much so, that when he hit the same rock on the next round, he climbed off and picked it up. To his astonishment he



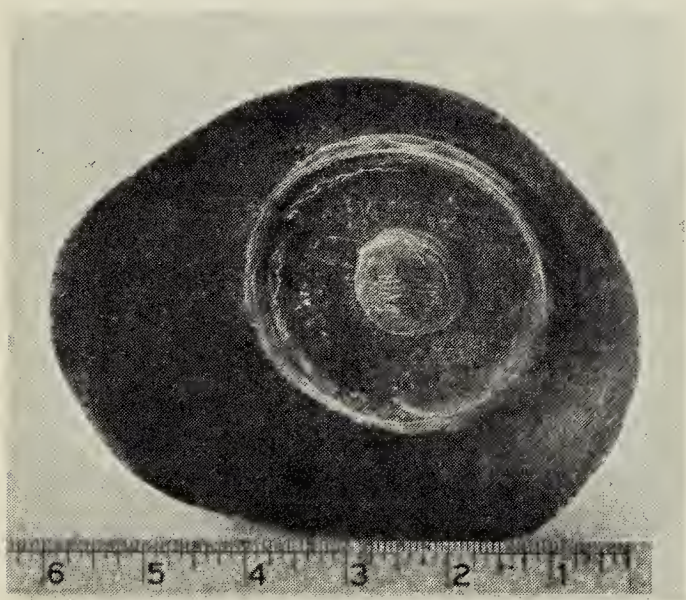
H. G. Wenham's concretion.

*Nipawin, Sask.

found it to contain deep rings on its top and bottom surfaces.

For years the stone remained a puzzle to all who saw it, until May 1970, when Mr. J. V. Hodges of Regina looked at it and immediately announced — "That's an excellent specimen of a concretion".

Mr. G. C. Watson of the Saskatchewan Museum of Natural History at Regina, after examining the rock in October, 1971, wrote: "The specimen is an ironstone concretion. The centre is a large clay ball and the bonding effect is produced by iron bearing material being attracted to the nucleus."



Photographs and detailed sketches of the rock were submitted to Mr. B. A. McCorquodale, Head Curator of Human History at the Provincial Museum at Edmonton, Alberta. He stated: "I am quite certain that the item is a concretion. Varying degrees of hardness of the material has accounted for the concentric grooves. Erosion has sectioned the concretion twice, accounting for the appearance of the pattern on both sides."

The finding of the specimen in the Tisdale area, while uncommon, was to be expected since its deposit on Mr. Whenham's farm was through the courtesy of a retreating glacier over 60 million years ago.

Mr. McCorquodale has authored a well written and profusely illustrated booklet entitled *Concretions and some other sedimentary structures* which is available through the Saskatchewan Museum of Natural History in Regina.

30 Years Ago

Thirty years ago, with the July-August-September issue, the first volume of the *Blue Jay* was complete and the Editor, Mrs. Priestly, took stock of the situation: "When we brought out the first number last October, it was on a veritable 'shoestring', both as regards funds and news. In fact there were moments when, having taken 'quarters' from people, we wondered if we would be able to make good our promise of future issues! However all that is past history. The response we have had to our bulletin is more than encouraging and all work connected with its production has been more than repaid by the number of delightful and interesting contacts we have made with people in all corners of the province. And we sincerely hope that the *Blue Jay* will continue to convey news of happenings in the outdoor world to an ever-widening circle."

Though the membership fee of 2 cents barely covered the cost of paper and stencils, it was decided not to increase it since the *Blue Jay* was the Yorkton club's main method of encouraging interest in native wild life.

After only a year of publication the *Blue Jay* was becoming known and appreciated outside Yorkton and even outside Saskatchewan. When J. Dew Soper, then Chief Federal Migratory Bird Officer for the Prairie Provinces, stopped in Yorkton on June 2, 1941, Mrs. Priestly reported that "he had some extremely nice things to say about the *Blue Jay* and the work it was doing to arouse greater interest in our wild life." Dr. A. L. Rand of the National Museum of Canada also saw the *Blue Jay's* potential as a means of acquiring information about the little known smaller animals of the prairie and sent the Museum's list of birds recorded for Saskatchewan for publication in the hope of obtaining further specimens.

Among the contributors to this number of the *Blue Jay* was Judge L.

McKim of Melville who sent in an interesting page of bird notes from the local area. He was also cited for his tribute to Judge J. M. Patrick of Moosomin (formerly of Yorkton) who died suddenly on June 9. "He was a true conservationist", wrote Judge McKim in the *Yorkton Enterprise*, even before many of us realized the necessity of protecting our game birds and animals and contributed in no small way to bringing into effect many measures for their preservation." For over 25 years Judge Patrick had maintained a deer park and bird sanctuary on the outskirts of Yorkton, until he moved to Moosomin in 1935.

In this issue the *Blue Jay* also paid tribute to other publications featuring nature columns. Marion Nixon's

"Nature" in the *Saskatchewan Farmer* had been mentioned in the previous issue, and now members were also urged to read Mrs. Elizabeth Flock's delightful nature articles that appeared from time to time in the *Regina Leader-Post*. Another nature column was being conducted in the young people's section of the *Western Producer* under the heading "Do You Watch the Birds?" In this column letters were printed from "young co-operators" describing the birds they had seen and fed. "Do You Watch the Birds?" had been running for some years and Mrs. Priestly commended the column on doing good work in encouraging the younger generation to take an interest in the bird life of the province.

ANNUAL MEETING

SASKATCHEWAN NATURAL HISTORY SOCIETY

The 25th Annual Meeting will be held in Saskatoon at the Saskatchewan Institute of Applied Arts and Sciences, Idylwyld Drive and 33rd Street, commencing Friday evening October 12th and continuing all day Saturday. In addition to the business sessions, there will be natural history programs and the annual supper — an opportunity to participate in Society affairs and help chart its future, and to pursue natural history interests among friends.

The Honourable Jean Chretien, Minister of Indian Affairs and Northern Development, whose ministry includes national parks, has been invited to be our guest speaker.

Following are names and addresses of the chairmen of the key committees. If you have any suggestions please get in touch with them.

— *Resolutions*, Tom Gentles, 41 Langley St., Regina.

If possible, send proposed resolutions to Tom by October 10th.

— *Nominations*, Frank Roy, 1702 Sommerfeld Ave., Saskatoon.

— *Awards*, Dr. Stuart Houston, 863 University Dr., Saskatoon.

— *Annual Meeting Arrangements*, Mrs. J. W. Gerrard, 809 Colony St., Saskatoon.

All members are urged to attend. On this, the occasion of the 25th Annual Meeting, a special invitation is extended to members who joined the Society in its initial year.

Further details will appear in the next issue of the *Newsletter*.



Letters

PROBABLE YELLOW-BREASTED CHAT NEAR AYLSHAM IN 1970

June 23, 1970, was a memorable day as that was the day I first heard the strangest chirps and warbles I had ever heard. In the very bright sunshine, the bird responsible appeared to be mainly yellow in varying shades. It looked like a very large warbler but it didn't warble or fly or act like a warbler! It didn't seem to be frightened of me but was very much aware of my presence, so getting an accurate description was very difficult.

Its round head, back, wings and tail were olive-grey, slightly greyer on the head, edge of the wings and edge of the tail. There was a black streak from the black bill to the eye and some other detail around the eye that I could not pinpoint. The underparts were yellow and white although I could not quite define the areas.

Looking in *Birds of America* by Pearson and Burroughs, I tentatively identified the bird as a Yellow-breasted Chat. However, the Yellow-breasted Chat is not listed in *The Birds of the Saskatchewan River* by Houston and Street, so I had doubts about the identification.

Later, while discussing this with Dr. Riome and checking other books, we were both convinced that it was a Yellow-breasted Chat mainly because of its awkward flight (with its legs down) and distinctive song.

We had a severe rainstorm the night before I first sighted the bird and thought it stayed for a week, sounding as worried the last day as the first, I never did get my glasses on it again to confirm my first observations. — Judy Robb (Mrs. M.), Aylsham

LARK SPARROWS NESTING NEAR ROCKGLEN, SASKATCHEWAN

A pair of Lark Sparrows built a nest in one of our spruce trees and raised two families in it. Thanks to this busy pair I had no insect damage in my garden. I noticed the pair in the spruce trees on June 15, 1972, but did not like to investigate too closely until I saw them carrying insects on June 20. On June 25 the nestlings were out of the nest in the surrounding bushes and being fed by the busy parents. By July 19 the parent birds were again feeding their second family in the old nest.

In his National Museum report, *Birds of the Cypress Hills and Flotten Lake Region*, W. E. Godfrey describes the Western Lark Sparrow as an "uncommon summer resident". On June 1948, two observations of these birds were made in this area — one in willow shrubbery of a coulee, 5 miles south of Maple Creek, and another at a caragana plantation at an abandoned ranch house on the dry plains just north of Willow Creek near the Montana border. — Effie Mattson, Rockglen, Sask.

FALL AND WINTER READINGS AND ACTIVITIES

by DIANE WEIR*

BATEMAN, James. *Animal traps and trapping*. 1971. Historical background to trapping and modern trapping equipment and methods are included in this book useful for professional trappers, gamekeepers, farmers, fishermen, naturalists, zoologists and antiquarians. CD 639.1 B328

BRIDGE, Raymond. *The complete snow camper's guide*. 1973. A new, illustrated handbook for the outdoorsman, with details on camping, travelling, equipment, and safety (another copy in Reference). 796.54 B851

BROCKMAN, C. F. *Trees of North America*. 1968. A field guide to the major native and introduced species north of Mexico with text, range maps and illustrations. 582.16 B864

BROWN, Vinson. *Reading the woods*. 1969. A guide for the outdoorsman who wants to see more in nature's familiar faces. 581.5 B881

COOPER, J. D. *Photography through monoculars, binoculars and telescopes*. 1965. 778.322 C777

CORRINGTON, J. D. *Exploring with your microscope*. 1957. Study of the construction, selection and uses of the microscope, with a chapter on the use of the microscope in various areas of criminology. 578 C825

ENNION, E. A. *Tracks*. 1967. A collection of photographs of tracks left by birds, mammals, amphibians and insects with a discussion of the possible activities of the animals at the time the tracks were made. 591.5 E59t

GOLDSTEIN, Philip. *Experiments with microscopic animals*. 1971. Book of research projects especially written for the amateur scientist using easily available micro-organisms. 593.1 G624

HUTCHINS, R. E. *Galls and gall insects*. 1969. Y 632.2 H974

JARMAN, Catherine. *Atlas of animal migration*. 1972. Beautiful book on migration, what it is, how it evolved, why animals do it and how naturalists keep track of animals. Detailed accounts follow the introduction and use full-color maps, globes and colour illustrations to show the migration of birds, mammals, fish, reptiles, amphibians, and insects. 591.52 J37

KAUFMANN, John. *Wings, sun, and stars*. 1969. Illustrated survey of research on bird migration, bird flight, and theories on how and why they migrate. Y 598.252 K21

KETCHUM, R. M. *The secret life of the forest*. 1970. Well-illustrated volume on the forest's hidden secrets, describing in detail the complex life within the woodland community and the growth and life cycle of the tree. 582.16 K43

Saskatoon Public Library,
23rd St. and 4th Ave.,
Saskatoon, Saskatchewan.

MURIE, O. J. *A field guide to animal tracks*. 1954. Covers mammals for which tracks have been obtained in North America, Mexico, and Central America, including over 30 birds, some reptiles and insects. (another copy in Reference) 591.5 M977

NORTHERN, H. T. *Ingenious kingdom*. 1970. Facts and recently discovered secrets of the plant world are contained in this book. 581 N874

OLSON, S. F. *The hidden forest*. 1969. Beautiful colour photographs enhance the text which investigates the forces and beauty of the forest throughout the four seasons of the cycle of life. 581.5 O52

ORR, R. T. *Animals in migration*. 1970. Illustrated comprehensive account of the movements of all animal populations. 591.52 O75

PETERSON, G. A. *The book of outdoor winter activities*. 1962. Hundreds of ways to enjoy colder weather — nature, hobbies, carnivals, snow sculpture, camping, ice and snow games. 796.9 P485

ROGERS, Matilda. *Photographs and clear, non-technical descriptions help to identify numerous trees*. 1951. 582.16 R728f

ROSSIT, E. A. *Snow camping and mountaineering*. 1951. Basic facts about the best equipment and procedures are presented in detail by an author with over twenty years experience in the field. 796.522 R835

RUTSTRUM, Calvin. *Paradise below zero*. 1968. Winter experiences and tips on clothes, travelling, equipment and camps are contained in this book. 796.54 R981p

SMITH, A. V. *Trees in a winter landscape*. 1969. A guide to tree identification in the winter and to selecting trees for their landscape qualities. 582.16 S642

SMITH, Anthony. *The seasons*. 1970. Well illustrated volume on life and its rhythms and the variety of seasonal activities on earth. 574.52 S642

TEALE, E. W. *Wandering through winter*. 1957. A naturalist's record of a 20,000-mile journey through the North American winter. 574.973 T253w

WITHERSPOON, J. D. *The living laboratory*. 1960. 200 experiments for amateur biologists. 574 W824

KLUANE NATIONAL PARK.

A Perspective from the National and Provincial Parks Association of Canada

By J. B. Theberge.

Available from the National and Provincial Parks Association of Canada, Suite 18, 43 Victoria St., Toronto. 70 pp. \$2.00.

This special publication by NPPA takes a hard, thorough look at the new Kluane National Park in the Yukon. The book begins with a preface by NPPAC President, Dr. J. Gordon Nelson, after which the author examines the park and surrounding areas in terms of social costs and benefits of both mining and the park. The significant geographical, geological, faunal and floral features of both the park and its surrounding areas are described and discussed. The text is well illustrated with excellent photographs by the author, Val Geist, Dierdre Griffiths, Manfred Hoefs and Dalton Muir, and with several maps. An appendix of birds observed there in 1971 and 1972 is included, as well as a "Literature Cited" which is actually a list of footnotes, including both literature and personal communications.

As explained by Dr. Nelson, the report was originally commissioned as a recommendation for preserving the area and later revised as a comment on the present park. Two basic conclusions will be reached by the reader of the book: (1) a wilderness park is definitely needed in the area, and (2) the present boundaries are not satisfactory. Major geographical, geological, faunal and floral areas of significance are excluded from the park, most of which could be included with the addition of another 2,200 square miles. Of the 10 major valleys which the author feels should be entirely within the park, four are included, three partially included, and three totally excluded. Of seven "priority ranges" of the four "most important large mammals of the area (Dall Sheep, Barren Ground Caribou, Grizzly Bear and Gray Wolf), only two are found in the park. Similar omissions are plentiful.

On the whole, the text is well written, and the author is to be congratulated on carefully documented, thorough report. Unfortunately, however, the book shows signs of hasty printing, and incomplete proof-reading. Although a few printing errors are almost inevitable, this book has too many for its length. Most of these are minor, although the gremlins of the type have added two new species to the literature ("Blackpool warbler" and Yellow-throated Flicker, on pp. 51 and 66, respectively). Several of the footnotes

are not cited in the text, and one (59) is missing from the Literature Cited. A few references are incomplete. One hopes that future publications of NPPAC will be more carefully checked before publishing, and that future works will not be double-spaced. Such excessive use of paper seems particularly inappropriate in a book published by a large conservation organization.

These criticisms are minor, and I unhesitatingly recommend this book to all concerned naturalists. — *Martin K. McNicholl*, Edmonton.

LOOKING BACK

At Our Questionnaire

We wish to thank the 215 people who took the trouble to reply to the questionnaire in the March 1973 issue. We analyzed the first 200, 192 of which were received by the July 2 deadline. There were only two replies from people not currently getting the *Blue Jay*.

References: The table presents a summary of what respondents want to read more about.

Subject	Total wanting subject	Percent of res- pondents	Indicated % of material *	Life history, ecology	Local lists	Iden- tifi- cation
Birds	149	75	10	129	106	111
Flowers, trees	144	74	10	105	82	111
Conservation	140	70	10	—	—	—
Mammals	135	68	9	118	86	88
Environmental problems	113	57	8	—	—	—
Photography	85	43	6	—	—	—
Butterflies	83	42	6	61	46	60
Geology	77	39	5	—	—	—
Reptiles	74	37	5	56	53	50
Flower Plants	74	37	5	58	44	55
Amphibians	72	36	5	55	47	52
Fish	65	33	5	55	41	44
Paleontology	63	32	4	—	—	—
Other Insects	58	29	4	51	26	38
Other						
Invertebrates	45	23	3	39	20	32
Astronomy	26	13	2	—	—	—
Other	21	12	1	—	—	—

*Obtained by totalling the first column and dividing that total into the number of respondents per subject. May be interpreted as number of pages per 100 pages or articles per 100 articles or pictures per 100 pictures on the subject.

It would seem from this voting that the average respondent is interested in many aspects of natural history and in preserving his environment, including its flora and fauna. Another indication of this wide range of interest is that 98% of those who wanted bird articles also wanted to read about other subjects.

Favourite Articles: Seventy-nine articles, notes and columns were listed among the best liked. Sixteen articles received more than 10 votes each. Their abbreviated titles, with the number of votes in parentheses, were: Coyote management in Saskatchewan (56), Whooping Crane in Saskatchewan (29), Common insect galls (29), Botanical investigation of the Drumheller area (20), Cougar kittens (20), Biological and chemical study of Qu'Appelle Lakes (19), Birdwatching indoors (18), Short-faced Bear (14), Captive Poor-will in Alberta (16), Letters and notes (15), Feeding the hungry (14), Goldeneyes at Emma Lake (13), Ste. Scholastique Airport (12), Animals of the Pinhorn Grazing Preserve (12), Then and now (Marion Nixon) (12), and Plea for protection of the Aiyansh lava flow (11).

Most of the reasons for liking articles are covered by "interesting", "informative", "educational", "well done", "readable" and "am familiar with the area".

Occupation: There were about 50 occupations listed by 182 people. The most frequent were: 31 housewives, 25 students, 22 active and 3 retired teachers and 23 farmers. Persons who were professionals in the subjects listed in the above table (biologists, veterinarians, conservation officers, archaeologists, etc. etc.) totalled 24.

Age of Respondents:

10-19 years: 14	20-29 years: 29	30-39 years: 25
40-49 years: 33	50-59 years: 40	60-69 years: 31
70-79 years: 11	80-89 years: 5	90-99 years: 1

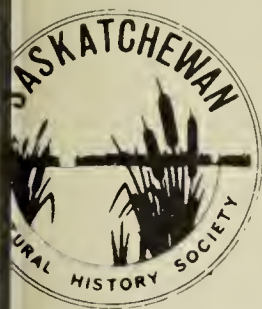
This tabulation shows that only one-third of the respondents were under 40. Obviously we did not find out what would make the *Blue Jay* more attractive to younger readers, particularly high school students.

Geographical Distribution: Not everyone stated where they lived but of those who did, there were 127 from Saskatchewan, 29 from Alberta, 17 from Manitoba, 10 from elsewhere in Canada and 4 from the United States.

Comments: There was a great variety of comments on many subjects. Most commonly mentioned were: new format (21 for, 2 against), emphasis on common names (21 for, 9 against), March cover (7 for, 8 against).

Summary: It looks as though the *Blue Jay* must continue to cover a wide range of subjects, but with a better balance among them. This, in turn, means that our readers, particularly our respondents, will have to help themselves by writing and encouraging others to write letters, notes and articles on their experiences and ideas, and by sending in photographs and drawings of plants, mammals, conservation topics, etc. etc.

Thanks again for your cooperation. — J. B. Gollop.



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